

EXHIBIT 49



Executive Summary

Optima / Sorento / Sportage Sunroof Glass Status

Kia Motors America 05/31/2013

Head of Group	President

The Power to Surprise

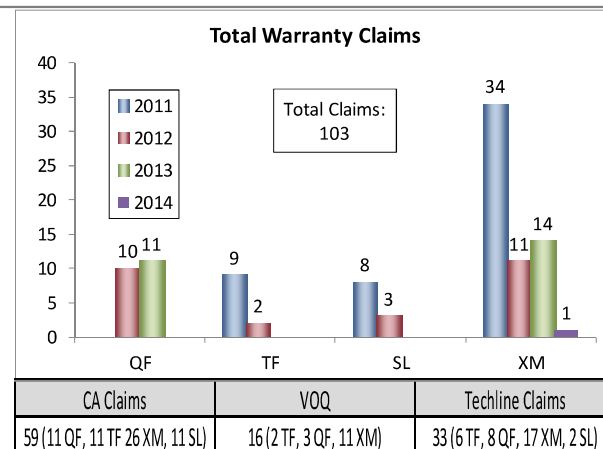
Panorama Sunroof Glass Summary

Purpose

- Provide Summary of Panorama Sunroof Glass Shatter Investigation to Determine if Quality or External Influence / Impact is contributing to this condition / complaint

Background

- NHTSA - VOQ [Vehicle Owner Questionnaire] Complaint :**
Customer / Field complaints of Panorama Sunroof Glass Shatter
– [11] XMa, [2] TF & [3] QF – **No Injuries have been reported**
VOQ [XMa example] -Customer reported hearing a loud explosion while driving @ speeds of approx 25mph. Customer pulled over sighting Panorama Glass exploded near the center of glass.
- Warranty Claims :**
 - Total Claims : 103 // XMa [60] , QF/TF [32] & SL [11]
 - Customer Interpretation of condition:
 - Condition occurs while driving
 - Condition occurs while closing sunroof/door
- Sliding Glass Part Demand In Last 12 months**
 - XMa = **141** - TF/QF = **143** - SL = **38**



Details

- KMA & Affiliate “Go and See” Investigations + Benchmark**
 - 27 Count [27 Completed: 15 XM & 6 QF / 6 TF]
 - 90% Supplier Attendance
 - Locations MI, (3)CA, (4)NY, GA, MD, (2)AR, TX, LA, (2)OK, FL, TN, (2)OR, NM, (2)NJ, (2)VA, OH, F
 - Results :
 - Foreign Object [15]
 - Inconclusive [12]
- Planned “Go and See” Investigations -**
 - No Investigations planned next week**
- HATCI Controlled Glass Durability Test @ CPG**
 - No Failure Identified during Durability Test (Completed 11/26)**



Conclusion

Next Steps

- External Influences / Rock Impact has been identified through this investigation as a contributing factor to field complaints.**
- KMC Investigation – Component test completed by Supplier with passing results of system components.
- KMC reporting **No Issue** found in body cavity variability / build quality or glass treatment.
- KMA PQ monitoring Techline & Warranty claims for “Go and See” Investigation with Affiliates [KMMG/ HATCI/ NAQC]**
- KMA Legal to meet with NHTSA for a follow up status report in June.**



XM Panorama Glass Investigation

Quality Assurance Team | 2012.10.18

Prepared	MGR	HOD
R. Kimbell		

KR-GA-GAF-F-0035
Rev. Date: 6/26/2012
Rev. Level: 01

Printed Copy for Reference Only

The Power to Surprise

XM Panorama Glass Investigation



Customer Complaint

- Customer states as they were driving down the highway at approximately 75-80 mph the sunroof glass panel fractured as they were passing a semi-truck. Customer did not recall hearing any sort of impact to the glass at that time.
- Location: Grand Rapids, MI

Investigation Details

➤ Participants:

- Ralph Kimbell (KMMG), Louis Watts (Webasto), Gwen Mihuc (Guardian), Mike Diver (Guardian), Thomas Baek, Jack Flanagan (KMA)

➤ Vehicle Information:

- VIN: 5XYKUDA24DG^{REDACTED} 2013 Sorento EX AWD
- Production Date: 7/17/12
- Mileage: 3339
- Service History: No repair history at KMMG, No external repair history



➤ Evaluation Results:

- During investigation there were some witness marks noticed on the roof near the antenna that may indicate that the customer potentially mounted something to the roof which could have potentially damaged the glass. However no roof rails were present.
- Also there were some scratches noticed on the rear glass, this may have been done if something was mounted to the roof as well or glass fragments from the front glass could have scratched it during the incident.
- After initial analysis of glass fragments, tempering of glass appears to be within specification.
- After initial analysis of all brackets, there is no evidence of e-coat failure between glass and brackets.
- **After glass analysis by Guardian, damage to glass appears to have started on right side of the glass. No other areas on the glass present showed a web-like break pattern as found on the right side. The web-like break pattern indicates where the crack began due to some sort of external impact to the glass.**






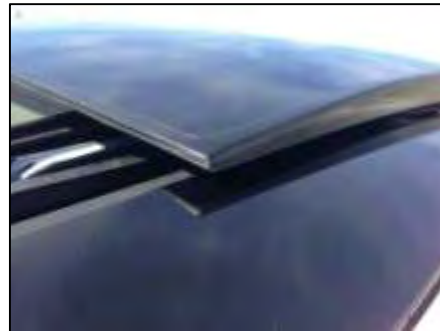


Next Steps

- Review process at Glovis and KMMG to verify proper handling of glass and ensure glass is not damaged prior to install.
- Webasto obtained all brackets from unit for further testing. Supplier will also check pano build history using barcode present on bracket to verify this pano roof had no prior repair concerns. All information will be included in their report.
- Guardian (Glass Supplier) obtained several fragments of glass from unit to verify tempering. Also requested additional inspection of glass before shipping. Supplier will also compile a report of results of additional testing.
- Recommend R&D evaluate and move to design similar to that of the Kia Optima.

XM Panorama Glass Investigation



Panorama Roof Comparison				
Kia Sorento		<div>Front</div>  <p>Glass has no protection around the edge similar to Hyundai Veloster.</p>	<div>Side</div> 	
Hyundai Veloster		<div>Front</div>  <p>Glass has no protection around the edge similar to XM.</p>	<div>Side</div> 	
Kia Optima		<div>Front</div>  <p>Glass edge is protected to prevent damage from impact unlike Veloster and Sorento.</p>	<div>Side</div> 	

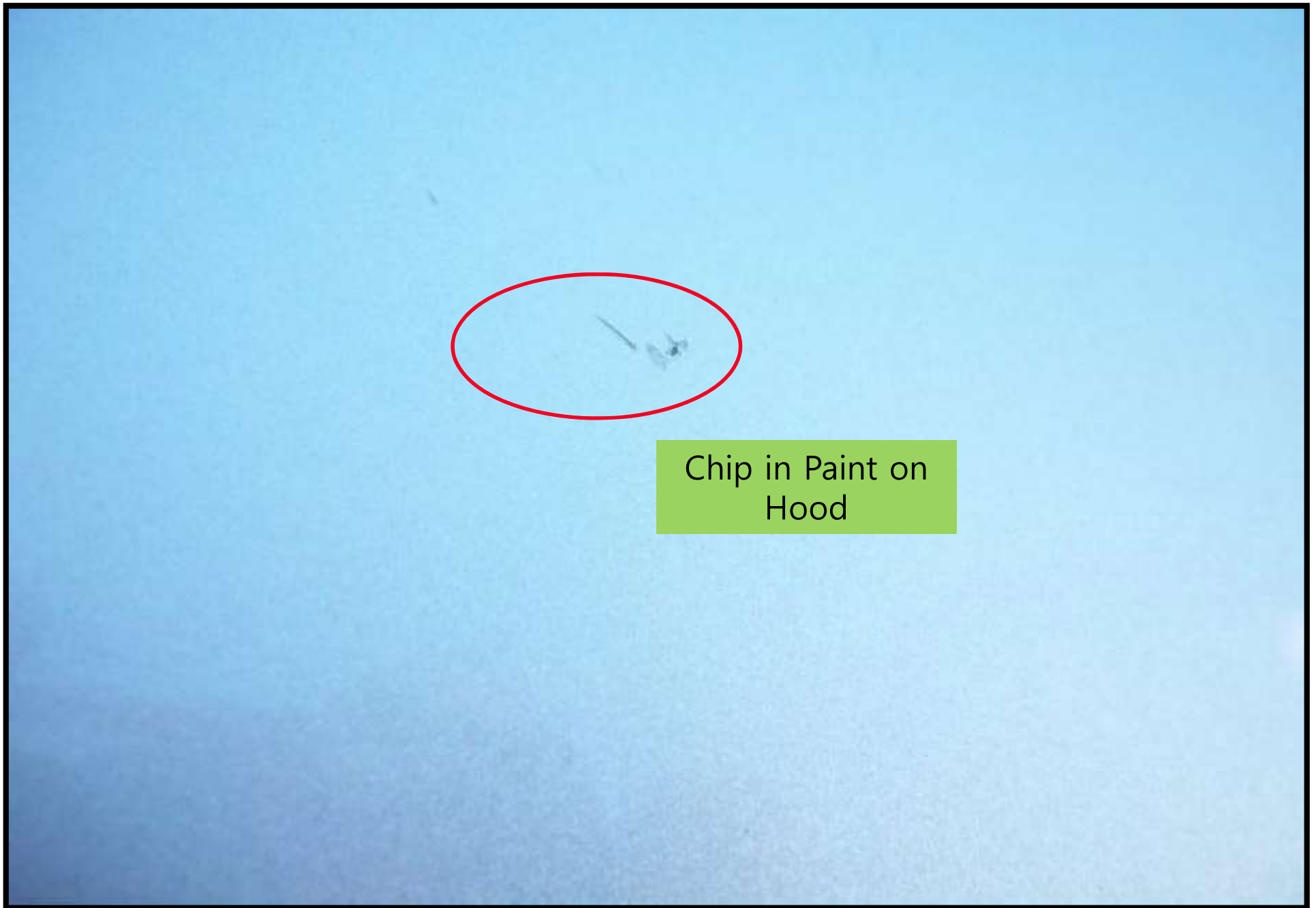
Concern

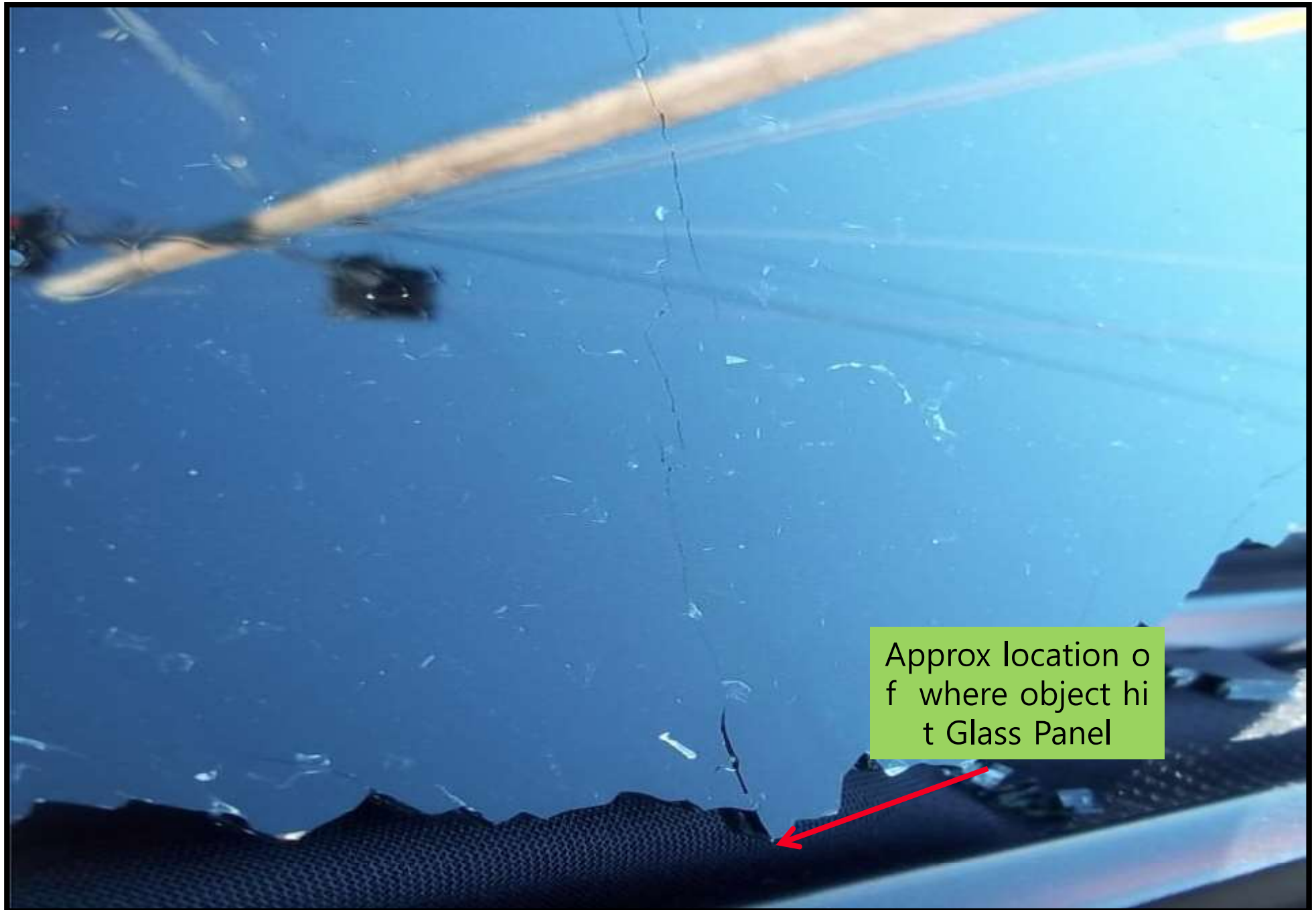
Panorama Glass Fragmented



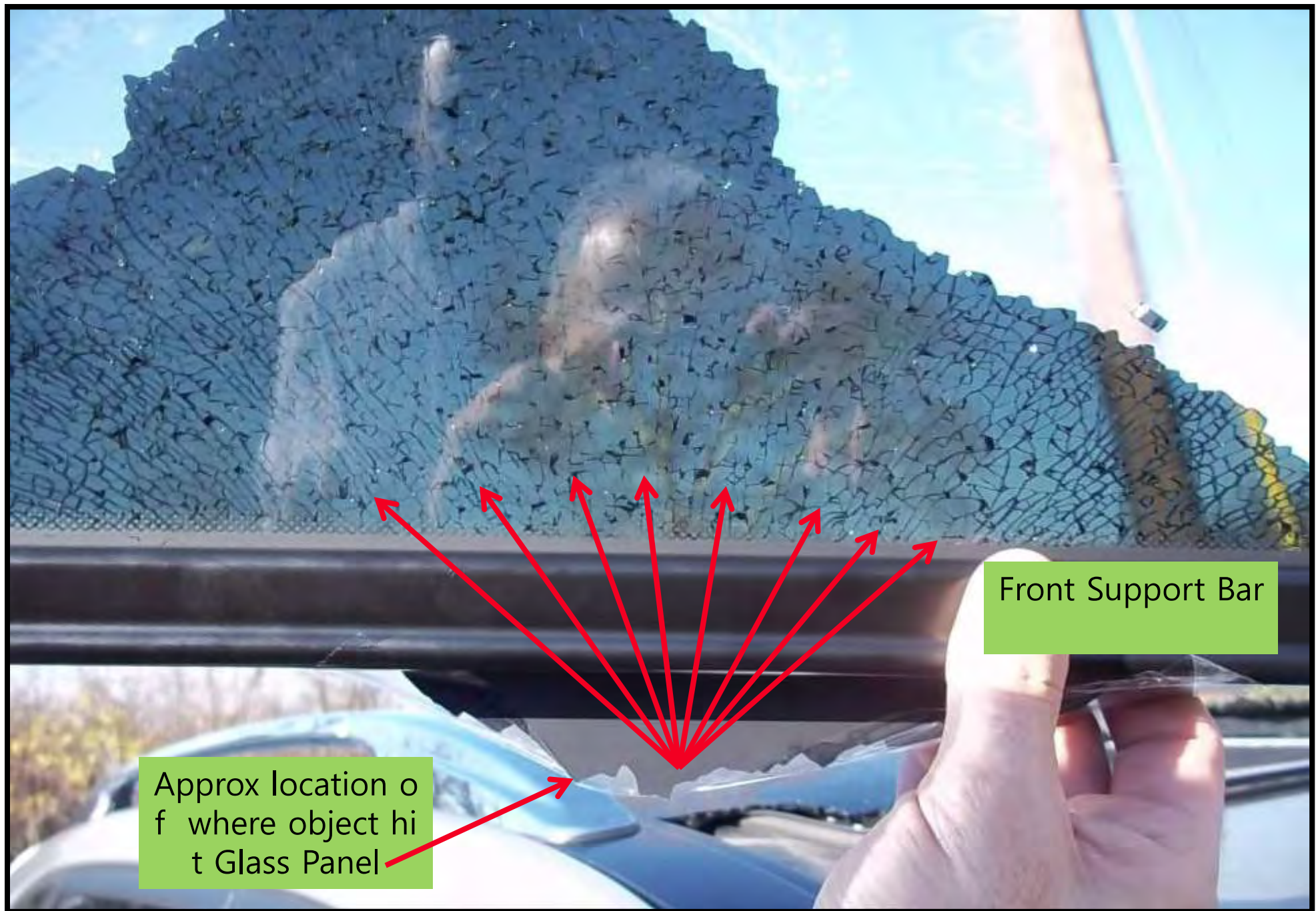
11 Xma Panoramic Roof Shatter







Approx location o
f where object hi
t Glass Panel



Approx location of where object hit Glass Panel

Front Support Bar







Paint chips on rear of roof from Glass shatter and spraying back while driving





XMa Panorama Sunroof Glass Breakage

Cause	Analysis										
<p>▶ Complaint</p> <ul style="list-style-type: none"> - Damaged glass sunroof highway driving (65-70 mph) <table border="1" data-bbox="121 519 945 706"> <tr> <td>※ 차량 정보 #</td><td>T2373852</td></tr> <tr> <td>VIN</td><td>5XYKUDA24DG <small>REDACTED</small></td></tr> <tr> <td>주행거리</td><td>3,339 mile</td></tr> <tr> <td>판매딜러</td><td>Fox Kia</td></tr> <tr> <td>발생지역</td><td>Grand Rapid, MI</td></tr> </table>  <p>▶ Cause: External Impact is suspected</p> <p>▶ 불량율 : 0.02% (12건/75,364대)</p> <p>※ 대상 차량 - 75,364대 (09.11/15 ~ 현재) - 파노라마루프 옵션Only</p>	※ 차량 정보 #	T2373852	VIN	5XYKUDA24DG <small>REDACTED</small>	주행거리	3,339 mile	판매딜러	Fox Kia	발생지역	Grand Rapid, MI	<p>[Problem Vehicle Results]</p> <p>※ Joint Investigation (12.10/17)</p> <ol style="list-style-type: none"> 1) Affiliates: KMMG,KMA,베바스토 2) Evaluation <ul style="list-style-type: none"> - Impact glass on the end of glass breakage investigation trail area 3) Analysis <ul style="list-style-type: none"> - External Impact was identified as "Root Cause" - Without glass edge protection, rock impact can be attributed to condition and maybe a disadvantage compared to competitors  <p>[Field Fix]</p> <ul style="list-style-type: none"> - Replace fragmented glass with new glass <p>FPQR</p> <p style="text-align: right;">업체 : 베바스토</p>
※ 차량 정보 #	T2373852										
VIN	5XYKUDA24DG <small>REDACTED</small>										
주행거리	3,339 mile										
판매딜러	Fox Kia										
발생지역	Grand Rapid, MI										

TF – Field Investigation Analysis Report

Purpose

❖ Investigate Field Quality Issue and Identify "Root Cause"

❖ Complaint

Vehicle Panorama Sunroof Glass Exploded Driving @ approximately 60 MPH

❖ TFT Members

(KMA PQ) Luis Buitrago and Joe Perez / (Webasto Supplier) Mr. Kim

Investigation Results

❖ Analysis :

❖ During the inspection, TFT observed fragmentation had occurred in the center of glass. Fragmentation occurred from the center of the glass and as a result, consequential damage occurred to the paint.

❖ The Investigation results are **Inconclusive** as to the "Root Cause" of this condition. Panorama sunroof front glass was recovered for further analysis.

❖ Details :

❖ VIN = KNAGR4A66B5^{REDACTED} / MILES = 20,976

❖ Vehicle approx. Speed = 60 mph

❖ Approx outside Temp = 59 deg F° / Location = Del Mar, CA

❖ Incident occurred while driving South on the I-5 Fwy

❖ Customer heard loud explosion coming from her vehicle

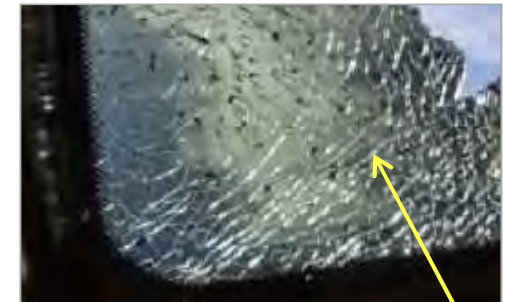
❖ Sunroof closed / Sunshade was open during occurrence

❖ Explosion occurred – customer stating, she realize sunroof glass had exploded. Additionally stating, little glass had fallen inwards from the explosion.

See Attached for additional photos



Fragmented in Center of Glass



Circular fracture configuration

Next Steps

❖ KMC to investigate supplier sunroof heat treatment variability and material characteristics (heat expansion).

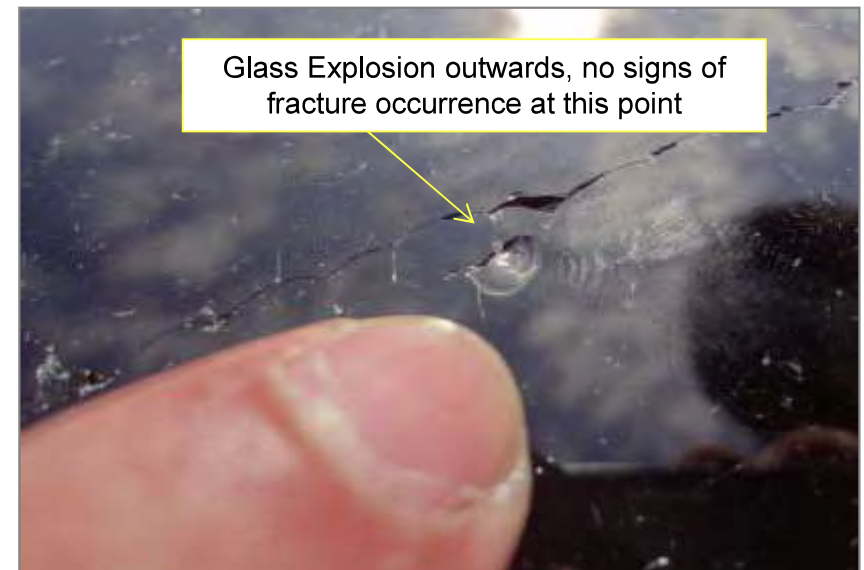
❖ KMC to investigate body opening cavity variability and sunroof dimension variability for potential interference

❖ KMC to investigate glass sample for material quality.

❖ FPQR

Problem

Panorama Glass Exploded



Condition

06:03



Overcast
Light Rain

59°F / 15°C

55°F / 13°C

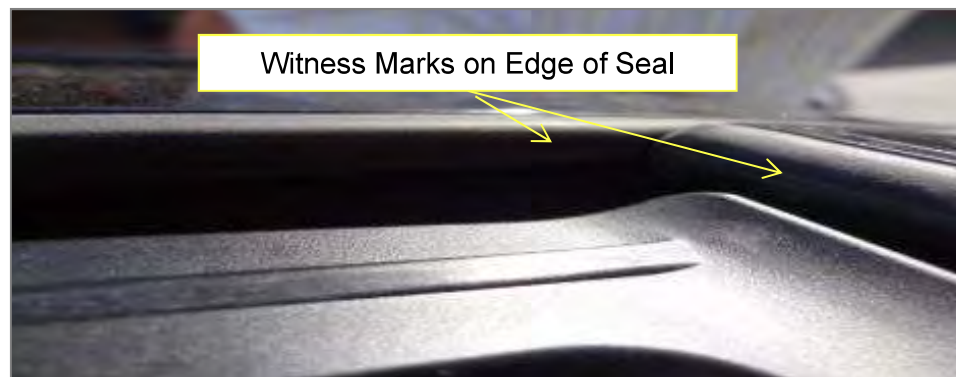
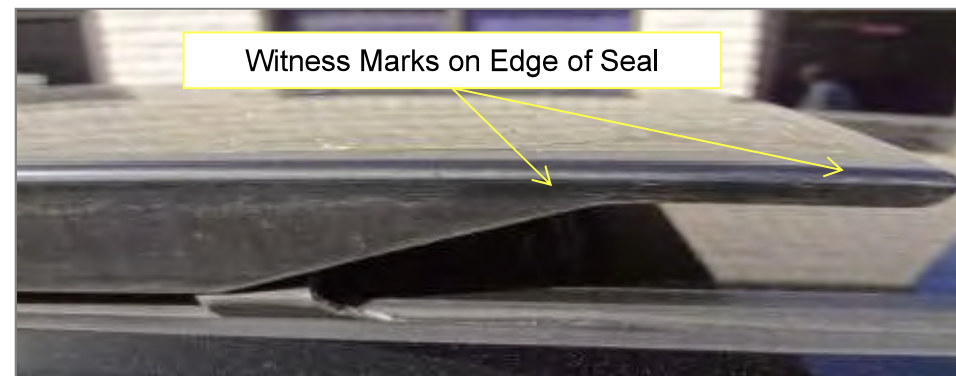
88%

30.06 in
(10.15 in)

ESE 3.5 mph
(ESE 6 kph)

0.00 in
(0.00 mm)

105M



XM – Field Investigation Analysis Report

Purpose

❖ Investigate Field Quality Issue and Identify "Root Cause"

❖ Complaint

Vehicle Panorama Sunroof Glass Exploded Driving at Highway Speeds

❖ TFT Members

(KMA) Chris Capuzzo (KMMG/QA) Ralph Kimble / (Webasto Supplier) Luis Watts

Investigation Results

❖ Analysis :

❖ Initial investigation confirmed the sunroof glass had fragmented and fell onto the sunshade. Further inspection reveals impact witness mark on the hood and on the surface of the glass. The witness mark on the hood was tracked to the impact mark (initial fracture) on the leading edge of the glass. The cracks propagated to the center causing the glass to collapse onto the sunshade. Consequential damage occurred to the paint from broken glass contact at highway speeds.

❖ The Investigation results are **conclusive** as to the "**Root Cause**" of this concern. The glass was cracked by a foreign object. Panorama sunroof front glass was recovered for further analysis.

❖ Details :

❖ VIN = 5XYKWDA26BG^{REDACTED} / MILES = 26,573

❖ Vehicle approx. Speed = 65mph

❖ Approx outside Temp = 50deg F°

❖ Customer heard loud explosion coming from the vehicle

❖ Sunroof closed / Sunshade was closed during occurrence

Double-Click Icon for Additional Photos



Fragmented in Center of Glass



Location of Initial Impact

Next Steps

❖ KMC to investigate glass sample for material quality.

XM – Field Investigation Analysis Report

Purpose

- ❖ Investigate Field Quality Issue and Identify "Root Cause"
- ❖ Complaint: Vehicle Panorama Sliding Sunroof Glass Exploded Driving @ approximately 65 MPH
- ❖ TFT Members: (KMA PQ) Dan Howells, (KMMG) Ralph Kimbell and (Webasto Supplier) Louis Watts

Investigation Results

❖ Analysis :

- ❖ During the inspection, TFT observed fragmentation occurred of the sliding glass. consequential damage occurred to the roller shade
- ❖ The Investigation results are Inconclusive as to the "Root Cause" of this condition.
- ❖ There is no damage to surrounding painted area from rock/debris (Various road hazards)
- ❖ All frame support bars have inspected, no loose glass to bracket

❖ Details :

- ❖ VIN: 5XYKU4A229CG^{REDACTED} / MILES: 6,311
- ❖ Vehicle approx. Speed = 60/70 mph
- ❖ Approx outside Temp = 55 deg F° / Location = Atlanta, GA
- ❖ Incident occurred while driving North on I-85
- ❖ Customer heard loud explosion coming from her vehicle
- ❖ Sunroof was closed / Sunshade was 1/4 (8 inches) of the way open during this occurrence
- ❖ Customer stating front reinforcement bar had fallen onto her
- ❖ Customer drove the vehicle to Ed Voyles Kia for inspection
- ❖ Sliding glass and roller shade will need to be replaced and glass fragments will need to be removed from the vehicle
- ❖ See attached for additional photos



Sliding glass completely fragmented



Glass attachment to frame was good

Next Steps

- ❖ Remaining glass pieces and supporting frame were taped up to prevent further damage during shipping
- ❖ The glass and all four reinforcement bars were sent to Rochester, MI for further analysis in the lab
- ❖ The glass temper and cracking angles will be investigated and reporting will be sent to KMMG
- ❖ FPQR

XM – Field Investigation Analysis Report

Purpose

- ❖ Purpose: Investigate Field Quality Issue and Identify "Root Cause"
- ❖ Complaint: Customer States Panorama Roof Glass Shattered While Driving on Hwy
- ❖ Members: (KMA PQ) Pete Ferry – Sr. Service Engineer

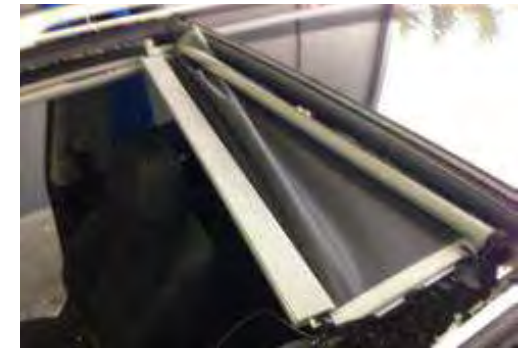
Investigation Results

Analysis :

- ❖ Customer complaint that there was a loud noise like an explosion and some portion of the roof and pieces of glass fell into vehicle
- ❖ Customer pulled over and was contacted by a witness and CHP
- ❖ Customer claims that they immediately drove to the dealership Temecula Kia and contacted Sales then left vehicle with Service
- ❖ Evidence that roof of vehicle had made contact with road debris which left signs of damage in four distinct areas (see next slide)
- ❖ Sunshade pushed back at an angle suggesting a force applied which did not originate at sunshade handle and was not due to air pressure alone. In addition, there are scuff marks left on top of sunshade crossbar
- ❖ Large dent which should have required some force found on left side of roof very close to leading edge of glass was most likely the impact which caused glass to shatter
- ❖ Marks on the inside edge of left of roof rail towards front
- ❖ Plastic trim piece in front edge of roof opening has signs of impact and discoloration due to bending as well as a small tear

Details :

- ❖ VIN: 5XYKU4A28DG^{REDACTED} / MILES: 1,269
- ❖ Location/Approx.Speed: I-15 S. Temecula/60-70 mph Uphill
- ❖ Conditions: Approx. 8:00 – 8:30 AM, Clear and Dry



Glass Fragmented, Shade Forced Back



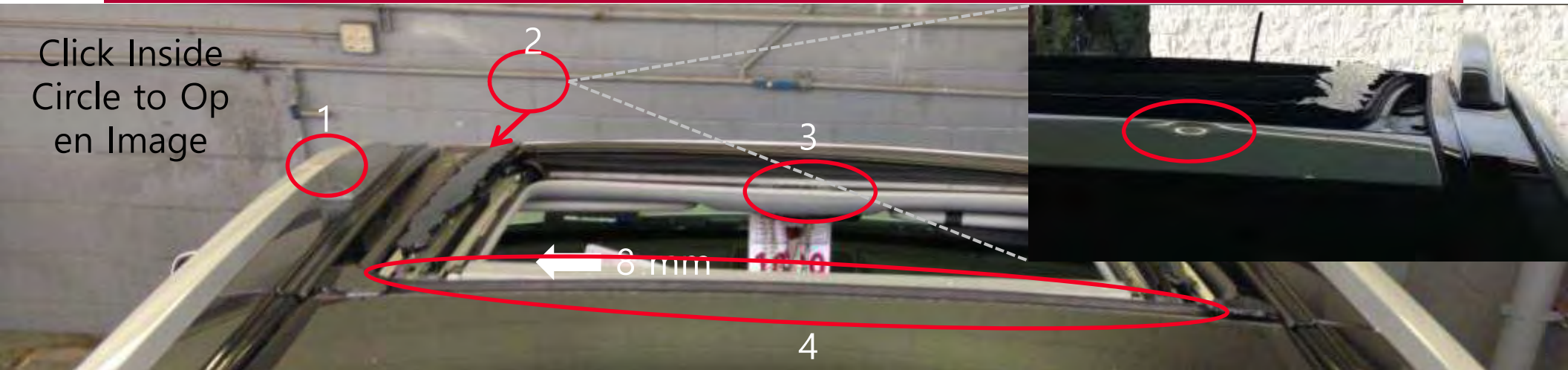
Large Dent Near on Roof Near Glass

Next Steps

- ❖ Vehicle currently part of a CA case and Pano Roof assy is not be removed but preserved in place for evidence
- ❖ Pano Roof glass fragmentation does not appear to be due to any material defect but rather it was due to impact with road debris and thus it is not going to be valuable for further investigation by the supplier or KMMG

XM – Field Investigation Analysis Report

Click Inside
Circle to Op
en Image



1. Scratches on inside toward the leading edge of the left side roof rail, aft of the large dent at left side of roof panel shown as #2. Note: Customer claims that they never used the roof rails to tie down any cargo since purchasing the vehicle, negating any plausible explanation for scratches found here being due to tie down hooks or cargo
2. Large dent at left side of roof panel. This dent is in right at the leading edge of the glass and an object which impacted with the force necessary to cause such a dent this close to the glass would also shatter the panoramic roof glass. We can demonstrate this on video showing a measured weight coming down at known velocity to exhibit similar dent and shatter the glass should this evidence be necessary for trial
3. Evidence of a strike near the center of the plastic trim piece (air dam) just forward of the panoramic roof opening. This impact caused the polymer to turn white due to the bending force applied to the material, caused a small cut about 3 mm deep, and impacted the edge of the headliner leaving a visible angle of deflection
1. There is a scrape mark with striations visible moving from front to rear on the top leading edge of the sunshade. The sunshade was also pushed rearward at an uneven angle. The customer claims that the sunshade was closed when the event occurred. The debris which caused the damage transferred some dirt or other material to this sunshade handle/cross bar.

QF – Field Investigation Analysis Report

Purpose

❖ Investigate Field Quality Issue and Identify "Root Cause"

❖ **Complaint** Vehicle Panorama Sunroof Glass Exploded Driving @ approximately 60 MPH

❖ **TFT Members** (KMA PQ) – Eastern Regional FTR Jim Selz

Investigation Results

❖ Analysis :

❖ During the inspection at MD042 on 12/17/2012, FTR observed a fragmentation had occurred in the center of glass.

❖ Origination of fragmentation was not evident.

❖ Panorama sunroof front glass had completely come apart during arrival for inspection.

❖ No impact marks to body or windshield was visible during investigation.

❖ The Investigation results are **Inconclusive** as to the "Root Cause" of this condition.

❖ Details :

❖ VIN = 5XXGN4A79DG^{REDACTED} / MILES = 8,621

❖ 13MY Optima

Customer Statement

❖ Vehicle approx. Speed = 60 mph

❖ Customer driving down road at highway speeds.

❖ Sunroof was closed.

❖ Sunroof suddenly exploded.

❖ Customer was not manipulating any sunroof controls



Photo Above Before Inspection



Evaluation Inconclusive

Next Steps

❖ KMA Field Representatives to continue and monitor field issues and conduct preliminary investigation / analysis.

❖ KMA Eastern Regional Office will work with dealer / customer to resolve current complaint / condition.

XM – Field Investigation Analysis Report

Purpose

- ❖ Investigate Field Quality Issue and Identify "Root Cause"
- ❖ Complaint - Vehicle Panorama Sunroof Glass Exploded while Vehicle was Stationary in Garage
- ❖ TFT Member – Paul Gianmoena (KMA Southern Region FTR) and Supplier Engineer (Webasto)

Investigation Results

❖ Analysis :

- ❖ Investigation was conducted in the customers garage (1/29/2013) AR017
- ❖ During the inspection, the TFT observed fragmentation had occurred in the front panorama sliding glass. It was also observed that the fragmentation occurred from the center of the glass.
- ❖ It is also **conclusive** the condition occurred while vehicle was stationary in the garage based on surrounding fragmented glass
- ❖ The Investigation results are **Inconclusive** as to the "**Root Cause**" of this condition. Panorama sunroof front glass was recovered for further analysis. Analysis to be completed by Supplier Webasto MI



Fragmentation in Center of Glass

❖ Details :

- ❖ VIN = 5XYKWDA25DG^{REDACTED} / MILES = 500
- ❖ 13MY Sorento SX AWD
- ❖ Production Date : 10/21/2012
- ❖ Incident occurred while vehicle was stationary in garage
- ❖ Customer stating identified condition when entering garage in the morning.
- ❖ Sunroof closed / Sunshade was semi open during occurrence
- ❖ No additional information was provided by customer



Fragmentation occurred in Garage

Next Steps

- Awaiting Supplier Analysis report on recovered sections of panorama glass.
- KMC reporting **No Issue** found in body cavity variability / build quality or glass treatment.
- **KMA PQ monitoring Techline & Warranty claims for "Go and See" Investigation with Affiliates [KMMG/ HATCI/ NAQC]**

TF – Field Investigation Analysis Report

Purpose

- ❖ Investigate Field Quality Issue and Identify "Root Cause"
- ❖ Complaint - Vehicle Panorama Sunroof Glass shattered while driving Vehicle at Highway Speeds
- ❖ TFT Member – Richard Peralta (KMA Southern Region FTR)

Investigation Results

❖ Analysis :

- ❖ Investigation was conducted at TX058 (2/11/2013)
- ❖ During the inspection, the TFT observed fragmentation had occurred in the front panorama sliding glass. It was also observed that the fragmentation occurred from the center of the glass.
- ❖ Inspected the edge, there are no impact marks around the edge of the roof.
- ❖ The glass appeared to be pushed up and out of the vehicle.
- ❖ The Investigation results are **Inconclusive** as to the "Root Cause" of this condition.
- ❖ Portions of Panorama sunroof front glass was recovered for further analysis.
- ❖ Glass fragments will be sent to Donghee/ Webasto for further analysis.

❖ Details :

- ❖ VIN = KNAGM4AD3C5^{REDACTED} / MILES = 420
- ❖ 12MY TF Hybrid
- ❖ The vehicle was traveling down the highway 281 at approx 60MPH around 4:00pm between the city of San Antonio and Austin, TX.
- ❖ The customer heard a loud noise followed by glass the sound of fragmented glass contacting the vehicle.
- ❖ The sunshade was closed, the windows were up and the A/C was on and in recirculation mode during the incident.
- ❖ The ambient temperature was ~85 degrees Fahrenheit with light winds present – this was a record setting temperature for the area.
- ❖ No other vehicles driving by. The vehicle was not traveling in a tunnel or under an overpass.
- ❖ A large amount of residual glass was not found on the sunshade.
- ❖ No obvious point of impact was found.



Fragmentation of Sliding Glass



Fragmentation occurred while driving

Next Steps

- Fragmented glass will be shipped to KMA / Supplier (Donghee/Webasto) for further analysis.
- KMC reporting **No Issue** found in body cavity variability / build quality or glass treatment.
- **KMA PQ monitoring Techline & Warranty claims for "Go and See" Investigation with Affiliates [KMMG/ HATCI/ NAQC]**
- **FPQR completed**

TF – Field Investigation Analysis Report

Purpose

- ❖ Investigate Field Quality Issue and Identify "Root Cause"
- ❖ Complaint - Vehicle Panorama Sunroof Glass shattered while driving Vehicle at Highway Speeds
- ❖ TFT Member – Richard Kydd – DPSM, Ken Kang – RPSM and Mr. Kim-Webasto/Donghee (Supplier Engineer)

Investigation Results

❖ Analysis :

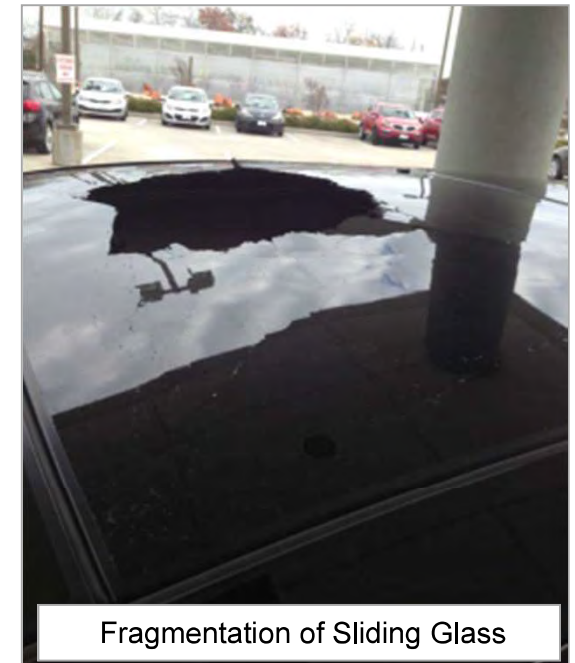
- ❖ Investigation was conducted at LA001 (2/22/2013)
- ❖ During the inspection, the TFT observed fragmentation had occurred in the front panorama sliding glass. It was also observed that the fragmentation occurred from the center of the glass.
- ❖ Inspected the edge, there are no impact marks around the edge of the roof.
- ❖ The glass appeared to be pushed up and out of the vehicle.
- ❖ The Investigation results are **Inconclusive** as to the "**Root Cause**" of this condition.
- ❖ Recovered remaining glass will be sent to Donghee/ Webasto Labs for further analysis.

❖ Details :

- ❖ VIN = 5XXGN4A60CG^{REDACTED} / MILES = 5,678
- ❖ 12MY Optima

- ❖ The customer was traveling on a surface street with the roof closed at about 30 MPH when she heard a crack/crunch and when she stopped she found the sunroof glass had come apart.
- ❖ the sunshade was fortunately closed as all the broken glass was on top of the shade

- ❖ **No obvious point of impact was found.**



Fragmentation of Sliding Glass

Next Steps

- Fragmented glass will be shipped by Supplier (Donghee/Webasto) for further analysis.
- KMC reporting **No Issue** found in body cavity variability / build quality or glass treatment.
- **KMA PQ monitoring Techline & Warranty claims for "Go and See" Investigation with Affiliates [KMMG/ HATCI/ NAQC]**

QF – Field Investigation Analysis Report

Purpose

- ❖ Investigate Field Quality Issue and Identify "Root Cause"
- ❖ Complaint - Vehicle Panorama Sunroof Glass shattered while driving Vehicle at Highway Speeds
- ❖ TFT Member – Richard Peralta (KMA Southern Region FTR)

Investigation Results

❖ Analysis :

- ❖ Investigation was conducted at OK007 (2/28/2013)
- ❖ During the inspection, the TFT observed fragmentation had occurred in the front panorama sliding glass. It was also observed that the fragmentation occurred from the center of the glass.
- ❖ Inspected the edge, an **impact mark** was **detected** around the edge of the roof.
- ❖ The Investigation results are **conclusive** to the "**Root Cause**" of this condition.
- ❖ Pieces of the fragmented glass will be shipped to KMA for further analysis

❖ Details :

- ❖ VIN = 5XXGR4A64DG^{REDACTED} MILES = 7,303
- ❖ 13MY Optima SX

❖ Customer complaint

- ❖ Customer states that the sunroof glass broke as they were driving down the highway
- ❖ The sunshade was closed, the windows were up
- ❖ A large amount of residual glass was not found on the sunshade.

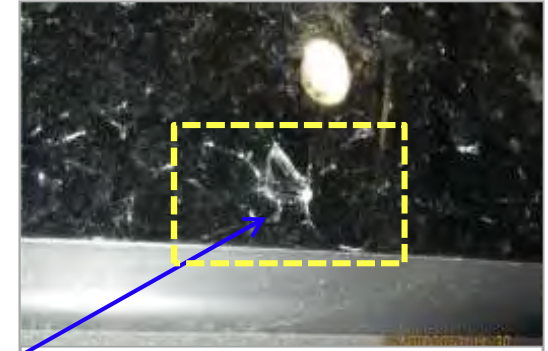
❖ Actual condition

- ❖ Sunroof glass broke due to impact mark at the RF of the glass

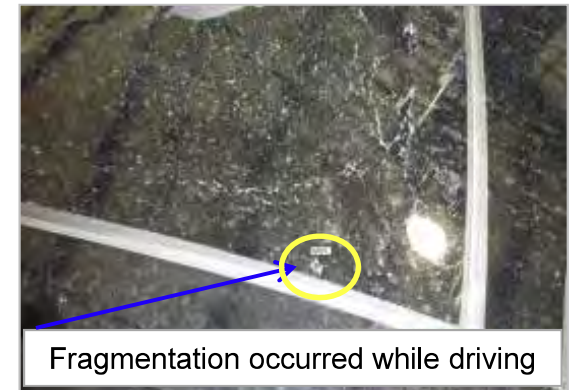
❖ Investigation results

- ❖ Found that the glass had fragmented, and there was a chip, in the glass near the edge at the RF of the sunroof

- ❖ **Corrective action** – Replace sunroof glass assembly, clean area of glass.



Impact Mark Identified



Fragmentation occurred while driving

Next Steps

- **No Further Action Needed with this investigation.** – Awaiting glass samples for further analysis if needed.
- KMC reporting **No Issue** found in body cavity variability / build quality or glass treatment.
- **KMA PQ monitoring Techline & Warranty claims for "Go and See" Investigation with Affiliates [KMMG/ HATCI/ NAQC]**
- **FPQR Completed**

XM – Field Investigation Analysis Report

Purpose

- ❖ Investigate Field Quality Issue and Identify "Root Cause"
- ❖ Complaint - Vehicle Panorama Sunroof Glass shattered while driving Vehicle at Highway Speeds
- ❖ TFT Member – Jeff Nelson (KMA Southern Region FTR)

Investigation Results

❖ Analysis :

- ❖ Investigation was conducted at FL056 (3/5/2013)
- ❖ During the inspection, the TFT observed fragmentation had occurred in the front panorama sliding glass.
- ❖ Inspected the edges, and no **impact mark** was **detected** around the edge of the roof.
- ❖ The Investigation results are **inconclusive** to the "**Root Cause**" of this condition.

❖ Details :

- ❖ VIN = 5XYKW4A21DG^{REDACTED} MILES = 3,823
- ❖ 13MY Sorento

❖ Customer complaint

- ❖ Customer States Driving Down The Road The Sunroof Exploded

❖ Actual condition

- ❖ Sunroof glass was completely fragmented (broken)

❖ Investigation results

- ❖ Found no external damage to vehicle caused by debris.

- ❖ **Corrective action** – Replace sunroof glass assembly, clean area of glass.



Next Steps

- KMC reporting **No Issue** found in body cavity variability / build quality or glass treatment.
- **KMA PQ monitoring Techline & Warranty claims for "Go and See" Investigation with Affiliates [KMMG/ HATCI/ NAQC]**
- **FPQR completed**

XM – Field Investigation Analysis Report

Purpose

- ❖ Investigate Field Quality Issue and Identify “Root Cause”
- ❖ Complaint - Vehicle Panorama Sunroof Glass shattered while driving Vehicle at Highway Speeds
- ❖ TFT Member – Joseph Mergl (KMA Southern Region FTR)

Investigation Results

❖ Analysis :

- ❖ Investigation was conducted at TN036 (3/6/2013)
- ❖ During the inspection, the TFT observed fragmentation had occurred in the front panorama sliding glass.
- ❖ Inspected the edges, and no **impact mark** was **detected** around the edge of the roof.
- ❖ The Investigation results are **inconclusive** to the “Root Cause” of this condition.

❖ Details :

- ❖ VIN = 5XYKW4A28DG^{REDACTED} MILES = 16,506
- ❖ 13MY Sorento

❖ Customer complaint

- ❖ Customer states that while driving down the interstate they heard a noise and the sunroof broke and went out onto the highway.

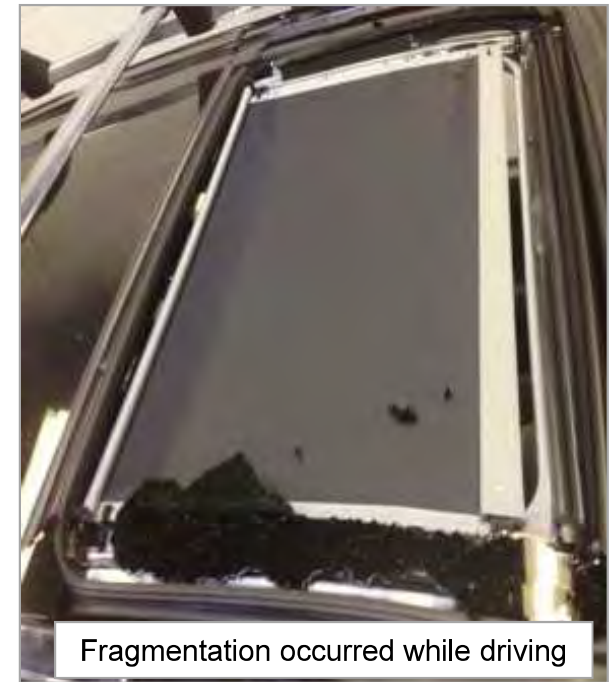
❖ Actual condition

- ❖ Driving down the interstate sunroof broke and went out on to the road, customer states nothing hit it.

❖ Investigation results

- ❖ FTR inspected vehicle, found that there was not much glass left to determine the root cause of failure. There were no impact marks on the roof rails or roof header panel. There was some paint chipped off the front facing rear portion of the roof behind the panoramic roof from what I believe to be caused by the glass leaving the vehicle.

- ❖ **Corrective action** – Replace sunroof glass assembly, clean area of glass.



Fragmentation occurred while driving

Next Steps

- KMC reporting **No Issue** found in body cavity variability / build quality or glass treatment.
- **KMA PQ monitoring Techline & Warranty claims for “Go and See” Investigation with Affiliates [KMMG/ HATCI/ NAQC]**
- **FPQR completed**

XM – Field Investigation Analysis Report

Purpose

- ❖ Investigate Field Quality Issue and Identify "Root Cause"
- ❖ Complaint - Vehicle Panorama Sunroof Glass shattered while driving Vehicle at Highway Speeds
- ❖ TFT Member – Ruben Sandoval (KMA Western Region DPSM) Scott Martin (KMA Western Region RPSM)

Investigation Results

❖ Analysis :

- ❖ Investigation was conducted at OR002 (3/13/2013)
- ❖ During the inspection, the TFT observed fragmentation had occurred in the front panorama sliding glass.
- ❖ Inspected the edges, and no **impact mark** was **detected** around the edge of the roof.
- ❖ The Investigation results are **inconclusive** to the "**Root Cause**" of this condition.

❖ Details :

- ❖ VIN = 5XYKWDA20DG^{REDACTED} MILES = 2,551
- ❖ 13MY Sorento

❖ Customer complaint

- ❖ Customer states panoramic roof glass broke for no reason

❖ Actual condition

- ❖ The front panoramic roof glass is shattered and the rear glass is scratched

❖ Investigation results

- ❖ DPSM and RPSM Physically inspected the vehicle for any signs of object strike, none were found
- ❖ **Corrective action** – The panoramic roof glass front and rear were replaced as per PQ and DPSM



Fragmentation occurred while driving

Next Steps

- KMC reporting **No Issue** found in body cavity variability / build quality or glass treatment.
- **KMA PQ monitoring Techline & Warranty claims for "Go and See" Investigation with Affiliates [KMMG/ HATCI/ NAQC]**
- **FPQR completed**

TF HEV – Field Investigation Analysis Report

Purpose

- ❖ Investigate Field Quality Issue and Identify "Root Cause"
- ❖ Complaint - Vehicle Panorama Sunroof Glass broke while driving Vehicle
- ❖ TFT Member – Dan Anderson (KMA Southern Region FTR)

Investigation Results

❖ Analysis :

- ❖ Investigation was conducted at NY058 (3/28/2013)
- ❖ During the inspection, the TFT observed fragmentation had occurred in the front panorama sliding glass.
- ❖ Inspected the edges, and **impact mark** was **detected** around the edge of the roof.
- ❖ The Investigation results are **conclusive** to the "**Root Cause**" of this condition.

❖ Details :

- ❖ VIN = KNAGM4AD3B5^{REDACTED} MILES = 65,363
- ❖ 11MY TF HEV

❖ Customer complaint

- ❖ Sunroof broke while driving

❖ Actual condition

- ❖ Sunroof glass was broken upon inspection

❖ Investigation results

- ❖ FTR inspected vehicle. Roof glass was broken. Inspected glass area for impact. Impact mark was evident on the RF leading edge of the glass
- ❖ Inspected the hood and front grill area for any stone chips and initial impact points. There were several stone chips on the hood area. One stone impact on the RF hood area was in direct line of the impact on the leading edge of the sunroof glass. No evidence of defect was found on the glass or sunroof during the inspection. Outside influence by a rock or road debris seems to be the cause of glass failure.
- ❖ **Cause** - Outside influence by a rock or road debris seems to be the cause of glass failure
- ❖ **Corrective action** – Replacement of the sunroof glass assembly



Next Steps

- KMC reporting **No Issue** found in body cavity variability / build quality or glass treatment.
- **KMA PQ monitoring Techline & Warranty claims for "Go and See" Investigation with Affiliates [KMMG/ HATCI/ NAQC]**
- **FPQR completed**

XM – Field Investigation Analysis Report

Purpose

- ❖ Investigate Field Quality Issue and Identify "Root Cause"
- ❖ Complaint - Vehicle Panorama Sunroof Glass broke while driving Vehicle
- ❖ TFT Member – Chris Capuzzo (KMA Eastern Region FTR)

Investigation Results

❖ Analysis :

- ❖ Investigation was conducted at NY090 (4/9/2013)
- ❖ During the inspection, the TFT observed fragmentation had occurred in the front panorama sliding glass.
- ❖ Inspected the edges, and **no impact mark** was **detected** around the edge of the roof.
- ❖ The Investigation results are **inconclusive** to the "Root Cause" of this condition.

❖ Details :

❖ VIN = 5XYKUDA23DG^{REDACTED} MILES = 11,231

❖ 13MY Sorento

❖ Customer complaint

❖ Customer states Panoramic Sunroof Glass Shattered

❖ Actual condition

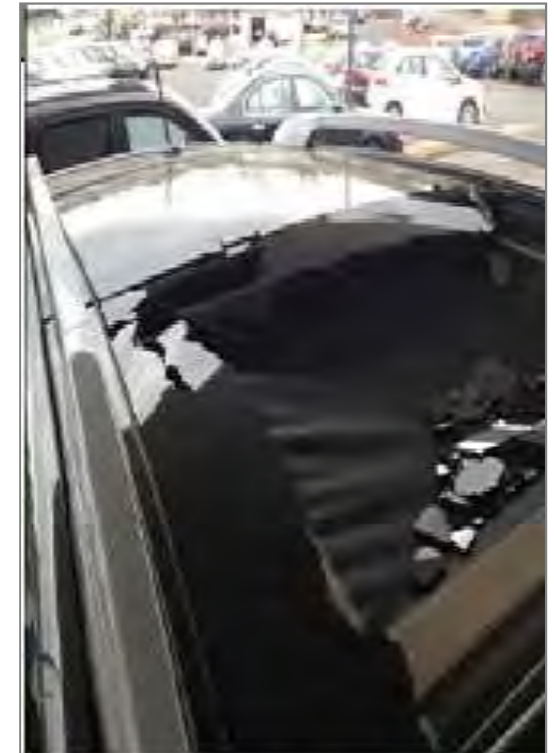
❖ Sunroof glass was broken upon inspection

❖ Investigation results

❖ FTR investigated the customer vehicle. When inspected - the sunshade was fully closed - I was informed that the customer closed to shade after the glass shattered to catch any remaining glass that may fall in the vehicle. There was some glass accumulated in the top of the sunshade, but the majority of the glass was inside the vehicle. The vehicle exterior was inspected and two (2) rock chips were found on the front windshield. There were no rock chips found on the front of the vehicle or the hood area. There was excessive paint chips to the rear of the roof, antenna assembly, and one large chip in the rear stationary glass assembly. Due to the extent of the glass breakage it could not be determined where the point of impact was on the sunroof glass.

❖ Cause - Unknown

❖ Corrective action – Clean vehicle and replaced movable sunroof glass assembly.



Next Steps

- KMC reporting **No Issue** found in body cavity variability / build quality or glass treatment.
- **KMA PQ monitoring Techline & Warranty claims for "Go and See" Investigation with Affiliates [KMMG/ HATCI/ NAQC]**
- **FPQR completed**

XM – Field Investigation Analysis Report

Purpose

- ❖ Investigate Field Quality Issue and Identify "Root Cause"
- ❖ Complaint - Vehicle Panorama Sunroof Glass broke while driving Vehicle
- ❖ TFT Member – Jim Selz (KMA Eastern Region FTR)

Investigation Results

❖ Analysis :

- ❖ Investigation was conducted at VA051 (4/23/2013)
- ❖ During the inspection, the TFT observed fragmentation had occurred in the front panorama sliding glass.
- ❖ Inspected the edges, and **no impact mark** was **detected** around the edge of the roof.
- ❖ The Investigation results are **inconclusive** to the "**Root Cause**" of this condition.
- ❖ However, Rock Impact is suspected due to multiple cracks on windshield

❖ Details :

❖ VIN = 5XYKUDA25BG^{REDACTED} MILES = 50,997

❖ 11MY Sorento

❖ Customer complaint

- ❖ Customer walked outside and noticed the sunroof glass was shattered

❖ Actual condition

- ❖ The sunroof was shattered and the customer already vacuumed up the remaining glass. They applied tape to the glass that was still attached to the frame of the sunroof panel

❖ Investigation Results

❖ FTR inspected the subject vehicle for concern of sunroof shatter. During my inspection I found the sunroof was totally shattered. The sunroof shade was closed and no glass on the shade because the customer vacuumed off. I did find signs of something hitting the hood and front windshield area and leaving marks. I found the front windshield was cracked and there is a sign of a rock chipping the windshield around the driver wiper area. The customer does drive on a gravel road to their house. There were no signs of the sunroof panel shattering while driving. From the information I gather, it is possible that the glass shattered due to impact, but it is difficult to determine point of impact

❖ **Cause** - The sunroof panel may have been cracked at one point, but with the temperature change being so different in the last couple of weeks may have caused the sunroof to shatter.

❖ **Corrective action** – cleaned up the loose glass and replaced the sunroof panel.



Next Steps

- KMC reporting **No Issue** found in body cavity variability / build quality or glass treatment.
- **KMA PQ monitoring Techline & Warranty claims for "Go and See" Investigation with Affiliates [KMMG/ HATCI/ NAQC]**
- **FPQR completed**

TF HEV – Field Investigation Analysis Report

Purpose

- ❖ Investigate Field Quality Issue and Identify “Root Cause”
- ❖ Complaint - Vehicle Panorama Sunroof Glass broke while driving Vehicle
- ❖ TFT Member – Bill Sharpe (KMA Western Region DPSM)

Investigation Results

❖ Analysis :

- ❖ Investigation was conducted at OR012 (4/25/2013)
- ❖ During the inspection, the TFT observed fragmentation had occurred in the front panorama sliding glass.
- ❖ Inspected the edges, and **no impact mark** was **detected** around the edge of the roof.
- ❖ The Investigation results are **inconclusive** to the “**Root Cause**” of this condition.

Details :

- ❖ VIN = KNAGM4AD9C5^{REDACTED} MILES = 20,284
- ❖ 12MY Optima HEV

❖ **Customer complaint**

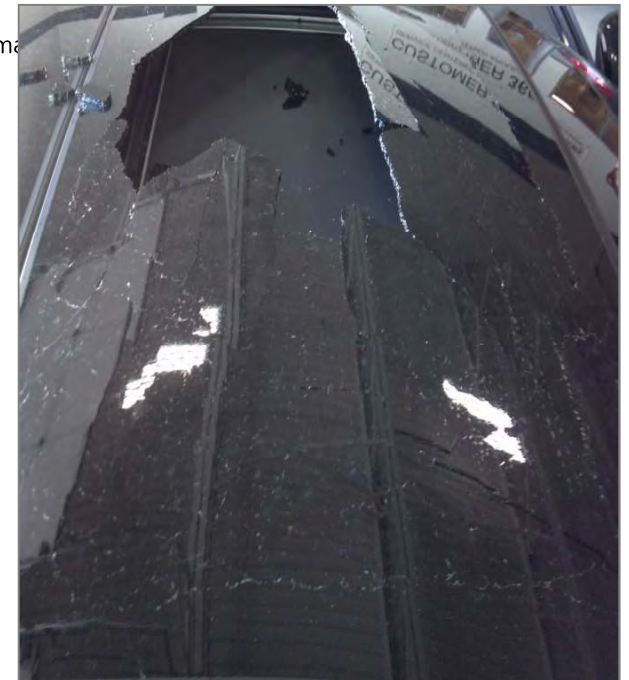
- ❖ Sunroof Glass Shattered

❖ **Actual condition**

- ❖ Sunroof glass was broken upon inspection

❖ **Investigation Results**

- ❖ Looks like sunroof blew out from the inside out
- ❖ **Cause** -Unknown
- ❖ **Corrective action** – Replace the Glass Sunroof.



Next Steps

- KMC reporting **No Issue** found in body cavity variability / build quality or glass treatment.
- **KMA PQ monitoring Techline & Warranty claims for “Go and See” Investigation with Affiliates [KMMG/ HATCI/ NAQC]**
- **FPQR completed**

TF HEV – Field Investigation Analysis Report

Purpose

- ❖ Investigate Field Quality Issue and Identify “Root Cause”
- ❖ Complaint - Vehicle Panorama Sunroof Glass broke while driving Vehicle
- ❖ TFT Member – Alberto Perez (KMA Western Region FTR)

Investigation Results

❖ Analysis :

- ❖ Investigation was conducted at CA263 (4/26/2013)
- ❖ During the inspection, the TFT observed fragmentation had occurred in the front panorama sliding glass.
- ❖ Inspected the edges, and **no impact mark** was **detected** around the edge of the roof.
- ❖ The Investigation results are **conclusive** to the “**Root Cause**” of this condition.
- ❖ However, Rock Impact is suspected due to multiple chips on windshield

Details :

- ❖ VIN = KNAGM4AD9C5^{REDACTED} MILES = 17,762
- ❖ 12MY Optima HEV

❖ Customer complaint

- ❖ Customer states sunroof glass broke while at a stop sign

❖ Actual condition

- ❖ The front panoramic sunroof glass is shattered.

❖ Investigation Results

- ❖ Multiple small rock impact were identified on front hood, windshield, rear panoramic glass and rear truck surface area

❖ Cause -Unknown

- ❖ **Corrective action** – Panoramic sunroof glass assembly was replaced



Next Steps

- KMC reporting **No Issue** found in body cavity variability / build quality or glass treatment.
- **KMA PQ monitoring Techline & Warranty claims for “Go and See” Investigation with Affiliates [KMMG/ HATCI/ NAQC]**
- **FPQR completed**

XM – Field Investigation Analysis Report

Purpose

- ❖ Investigate Field Quality Issue and Identify “Root Cause”
- ❖ Complaint - Vehicle Panorama Sunroof Glass broke while driving Vehicle
- ❖ TFT Member – Chris Capuzzo (KMA Eastern Region FTR)

Investigation Results

❖ Analysis :

- ❖ Investigation was conducted at NJ014 (4/29/2013)
- ❖ During the inspection, the TFT observed fragmentation had occurred in the front panorama sliding glass.
- ❖ Inspected the edges, and **no impact mark** was **detected** around the edge of the roof.
- ❖ The Investigation results are **inconclusive** to the “Root Cause” of this condition.

Details :

❖ VIN = 5XYKUDA29BG^{REDACTED} MILES = 47,627

❖ 11MY Sorento

❖ Customer complaint

❖ Customer states Panoramic Sunroof Glass shattered

❖ Actual condition

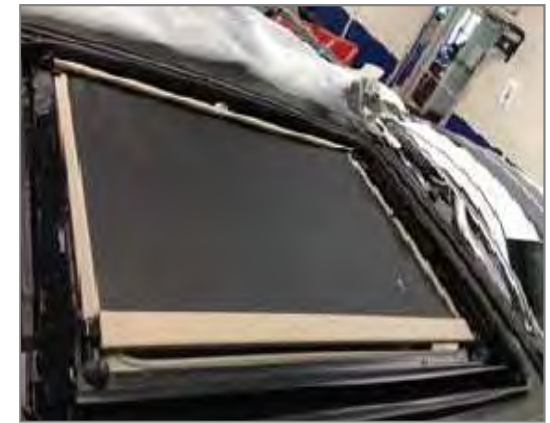
❖ the customer stated that he was driving on a paved road – nobody around him – and the sliding sunroof glass imploded. He also stated that the sunshade was in the open state, and he and wife were covered in glass. He did state that glass was down his shirt, and he and his wife had small cuts on their extremities. He did contact the local authorities, because he was concerned as to what ruptured the glass, but the onsite investigation was determined inconclusive

❖ Investigation Results

FTR investigated the customer vehicle. When inspected - the sunshade was closed - I was informed that the customer cleaned the glass which shattered throughout the vehicle. There was some glass accumulated in the top of the track assemblies, but the majority of the glass was inside the vehicle. There was also glass in between the rear hatch jamb and rear stationary glass/roof assembly. The vehicle exterior was inspected and three (3) rock chips were found on the hood assembly and one on the front windshield. Because a majority of the glass was missing it was impossible to determine the point of impact on the sliding glass

❖ Cause -Unknown

❖ Corrective action – Clean vehicle and replaced movable sunroof glass assembly and sunshade



Next Steps

- KMC reporting **No Issue** found in body cavity variability / build quality or glass treatment.
- **KMA PQ monitoring Techline & Warranty claims for “Go and See” Investigation with Affiliates [KMMG/ HATCI/ NAQC]**
- **FPQR completed**

QF – Field Investigation Analysis Report

Purpose

- ❖ Investigate Field Quality Issue and Identify “Root Cause”
- ❖ Complaint - Vehicle Panorama Sunroof Glass broke while driving Vehicle
- ❖ TFT Member – Richard Peralta (KMA Southern Region FTR)

Investigation Results

❖ Analysis :

- ❖ Investigation was conducted at AR018 (5/2/2013)
- ❖ During the inspection, the TFT observed fragmentation had occurred in the front panorama sliding glass.
- ❖ Inspected the edges, and **no impact mark** was **detected** around the edge of the roof.
- ❖ The Investigation results are **conclusive** to the “**Root Cause**” of this condition.

Details :

❖ VIN = 5XXGR4A6XDG^{REDACTED} MILES = 3,623

❖ 13MY Optima

❖ Customer complaint

❖ Sunroof glass shattered while driving at highway speeds

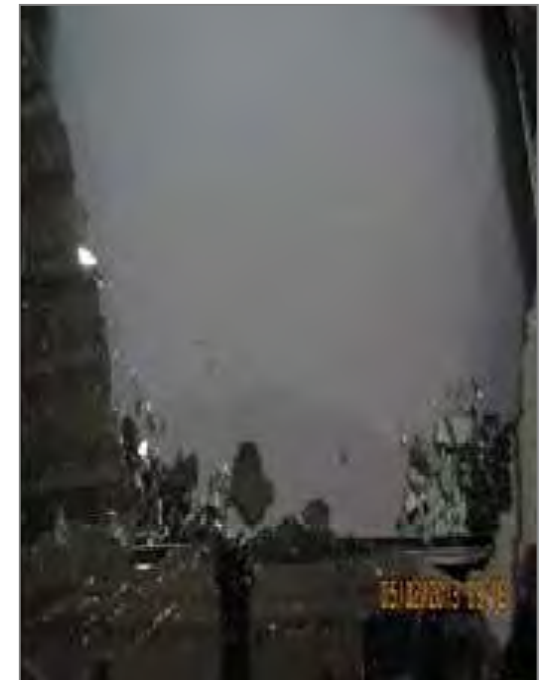
❖ Actual condition

❖ Sunroof glass is shattered.

❖ Investigation Results

Found Sunroof glass shattered. Scratches on the trunk lid from glass debris

❖ Corrective action – Replace the sunroof glass



Next Steps

- KMC reporting **No Issue** found in body cavity variability / build quality or glass treatment.
- **KMA PQ monitoring Techline & Warranty claims for “Go and See” Investigation with Affiliates [KMMG/ HATCI/ NAQC]**
- **FPQR completed**

QF – Field Investigation Analysis Report

Purpose

- ❖ Investigate Field Quality Issue and Identify "Root Cause"
- ❖ Complaint - Vehicle Panorama Sunroof Glass broke while driving Vehicle
- ❖ TFT Member – Richard Peralta (KMA Southern Region FTR)

Investigation Results

❖ Analysis :

- ❖ Investigation was conducted at OK015 (5/3/2013)
- ❖ During the inspection, the TFT observed fragmentation had occurred in the front panorama sliding glass.
- ❖ Inspected the edges, and **no impact mark** was **detected** around the edge of the roof.
- ❖ The Investigation results are **inconclusive** to the "**Root Cause**" of this condition.

Details :

❖ VIN = 5XXGR4A64DG^{REDACTED} MILES = 3,395

❖ 13MY Optima

❖ Customer complaint

❖ Sunroof glass shattered while driving at 40 MPH

❖ Actual condition

❖ Sunroof glass is shattered.

❖ Investigation Results

Found that the sunroof had shattered while driving. Found scratches on the trunk lid from glass debris

❖ Corrective action – Replace the sunroof glass



Next Steps

- KMC reporting **No Issue** found in body cavity variability / build quality or glass treatment.
- **KMA PQ monitoring Techline & Warranty claims for "Go and See" Investigation with Affiliates [KMMG/ HATCI/ NAQC]**
- **FPQR completed**

QF – Field Investigation Analysis Report

Purpose

- ❖ Investigate Field Quality Issue and Identify "Root Cause"
- ❖ Complaint - Vehicle Panorama Sunroof Glass broke while driving Vehicle
- ❖ TFT Member – Alberto Perez (KMA Western Region FTR)

Investigation Results

❖ Analysis :

- ❖ Investigation was conducted at NM010 (5/3/2013)
- ❖ During the inspection, the TFT observed fragmentation had occurred in the front panorama sliding glass.
- ❖ Inspected the edges, and **no impact mark** was **detected** around the edge of the roof.
- ❖ The Investigation results are **conclusive** to the "**Root Cause**" of this condition.
- ❖ However, Rock Impact is suspected due to multiple chips on windshield

Details :

- ❖ VIN = 5XXGR4A64CG^{REDACTED} MILES = 18,507
- ❖ 12MY Optima
- ❖ **Customer complaint**
- ❖ Customer states sunroof glass broke while driving on highway
- ❖ **Actual condition**
- ❖ Vehicle was driven at 10 AM on freeway speed at 70 mph when front panoramic sunroof glass shattered
- ❖ **Investigation Results**
- Multiple small rock impact were identified on front hood and windshield area
- ❖ **Cause** -Unknown
- ❖ **Corrective action** – Panoramic sunroof glass assembly was replaced



Next Steps

- KMC reporting **No Issue** found in body cavity variability / build quality or glass treatment.
- **KMA PQ monitoring Techline & Warranty claims for "Go and See" Investigation with Affiliates [KMMG/ HATCI/ NAQC]**
- **FPQR completed**

QF – Field Investigation Analysis Report

Purpose

- ❖ Investigate Field Quality Issue and Identify "Root Cause"
- ❖ Complaint - Vehicle Panorama Sunroof Glass broke while driving Vehicle
- ❖ TFT Member – Chris Capuzzo (KMA Eastern Region FTR)

Investigation Results

❖ Analysis :

- ❖ Investigation was conducted at NJ063 (5/8/2013)
- ❖ During the inspection, the TFT observed fragmentation had occurred in the front panorama sliding glass.
- ❖ Inspected the edges, and **no impact mark** was **detected** around the edge of the roof.
- ❖ The Investigation results are **conclusive** to the "**Root Cause**" of this condition.

Details :

❖ VIN = 5XXGN4A7XDG^{REDACTED} MILES = 6,229

❖ 13MY Optima

❖ Customer complaint

❖ Customer states Panoramic Sunroof Shattered

❖ Actual condition

❖ The movable sunroof glass was shattered and there was scratches on rear deck lid shattered

❖ Investigation Results

FTR investigated concern. When vehicle was inspected - there was a hole in the movable sunroof glass. The sunroof glass was taped with packing tape on the outside and blue painters tape on the broken hole area. The glass had a hole approximately the size of a basketball. The glass appeared to have an upward bow. There was some residual glass on the inside of the vehicle - but I was informed that a majority of the glass in the interior was cleaned by the customer. The outside of the vehicle was inspected and a rock chip was found on the hood. There were also cuts and gouges in the rear deck lid surface. I was informed by the service manager that the customer stated that they were traveling on the highway (Route 80 in NJ) and the sunroof was in the "vent" position. They then heard a loud "Gunshot" type sound and glass began to fall. The driver's window was also in the open position.

❖ **Cause** - Foreign Object contact glass surface

❖ **Corrective action** – Repair and refinish the rear deck lid surface - replace panoramic sunroof movable glass - clean interior of vehicle. Techline case - T2480594



Next Steps

- KMC reporting **No Issue** found in body cavity variability / build quality or glass treatment.
- **KMA PQ monitoring Techline & Warranty claims for "Go and See" Investigation with Affiliates [KMMG/ HATCI/ NAQC]**
- **FPQR completed**



XM Panorama Glass Investigation Summary

Quality Assurance Team | 2012.12.06

Prepared	MGR	HOD
R. Kimbell		



XM Panorama Glass - Warranty



	Date	Vehicle Information	Attendees	Summary	Photo	Remark
1	<ul style="list-style-type: none"> • Date: 10/18/12 • Dealer: Grand Rapids, MI (MI022) 	<ul style="list-style-type: none"> • Body : IX- 357752 • Prod. Date : 7/17/12 • Mileage: 3339 	<ul style="list-style-type: none"> • Ralph Kimbell (KMMG) • Louis Watts (Webasto) • Gwen Mihuc (Guardian) • Mike Diver (Guardian) • Thomas Baek • Jack Flanagan (KMA) 	<ul style="list-style-type: none"> • No evidence of e-coat failure between glass and brackets. • Tempering of glass appears to be within specification. • No foreign debris found within the sunroof track or vehicle • Pano roof functioning properly mechanically • Damage to glass appears to have started on right side of the glass from some external impact based on web-like break pattern. 		
2	<ul style="list-style-type: none"> • Date: 11/10/12 • Dealer: Poughkeepsie, NY (NY099) 	<ul style="list-style-type: none"> • Body : IX-091285 • Prod. Date : 8/16/10 • Mileage: 26, 573 	<ul style="list-style-type: none"> • Ralph Kimbell (KMMG) • Louis Watts (Webasto) • Chris Capuzzo (KMA) 	<ul style="list-style-type: none"> • No evidence of e-coat failure between glass and brackets. • Tempering of glass appears to be within specification. • Pano roof functioning properly mechanically • Damage to glass appears to have started at the front-right side of the glass from some external impact based on web-like break pattern 		
3	<ul style="list-style-type: none"> • Date: 11/30/12 • Dealer: Smyrna, GA (GA073) 	<ul style="list-style-type: none"> • Body : IX- 199634 • Prod. Date : 5/20/2011 • Mileage: 6,311 	<ul style="list-style-type: none"> • Ralph Kimbell (KMMG) • Louis Watts (Webasto) • Dan Howells (KMA) 	<ul style="list-style-type: none"> • No evidence of e-coat failure between glass and brackets. • Tempering of glass appears to be within specification. • Pano roof functioning properly mechanically • Much of the glass on the leading edge lost as customer was on the highway. No witness markings present. Origin of fracture not clear, no foreign debris found. 		

XM Panorama Glass - Warranty



	Date	Vehicle Information	Attendees	Summary	Photo	Remark
4	<ul style="list-style-type: none"> • Date: 11/29/12 • Dealer: Temecula, CA (CA269) 	<ul style="list-style-type: none"> • Body : IX- 378717 • Prod. Date : 9/14/12 • Mileage: 1,269 	<ul style="list-style-type: none"> • Pete Ferry (KMA) 	<ul style="list-style-type: none"> • KMA investigated and found large dent on the left side of roof very close to leading edge of glass which they believe to be root cause of glass break • Also found plastic trim piece in front edge of roof opening has signs of impact and discoloration due to bending as well as a small tear. 		
5	<ul style="list-style-type: none"> • Date: 1/21/13 • Dealer: Cambridge, Ontario 	<ul style="list-style-type: none"> • Body : IX- 021352 • Prod. Date : 1/25/10 • Mileage: N/A 	<ul style="list-style-type: none"> • Louis Watts (Webasto) 	<ul style="list-style-type: none"> • Unit repaired before investigation could be completed. 	N/A	
6	<ul style="list-style-type: none"> • Date: 1/21/13 • Dealer: St-Hyacinthe, Quebec 	<ul style="list-style-type: none"> • Body : IX- 210421 • Prod. Date : 6/23/11 • Mileage: N/A 	<ul style="list-style-type: none"> • Louis Watts (Webasto) 	<ul style="list-style-type: none"> • Unit repaired before investigation could be completed. 	N/A	

XM Panorama Glass - Warranty



	Date	Vehicle Information	Attendees	Summary	Photo	Remark
7	<ul style="list-style-type: none"> • Date: 1/29/13 • Dealer: AR017 Bentonville, Arkansas 	<ul style="list-style-type: none"> • Body : IX- 397008 • Prod. Date : 10/23/12 • Mileage: 500 	<ul style="list-style-type: none"> • Paul Gianmoena (KMA), Brian Ohara (Webasto) 	<ul style="list-style-type: none"> • Awaiting report from Webasto with investigation results. 		

Sunroof Glass –SMALL PIECES REPORT (QF SUNROOF MOVING GLASS)

2013.03.07

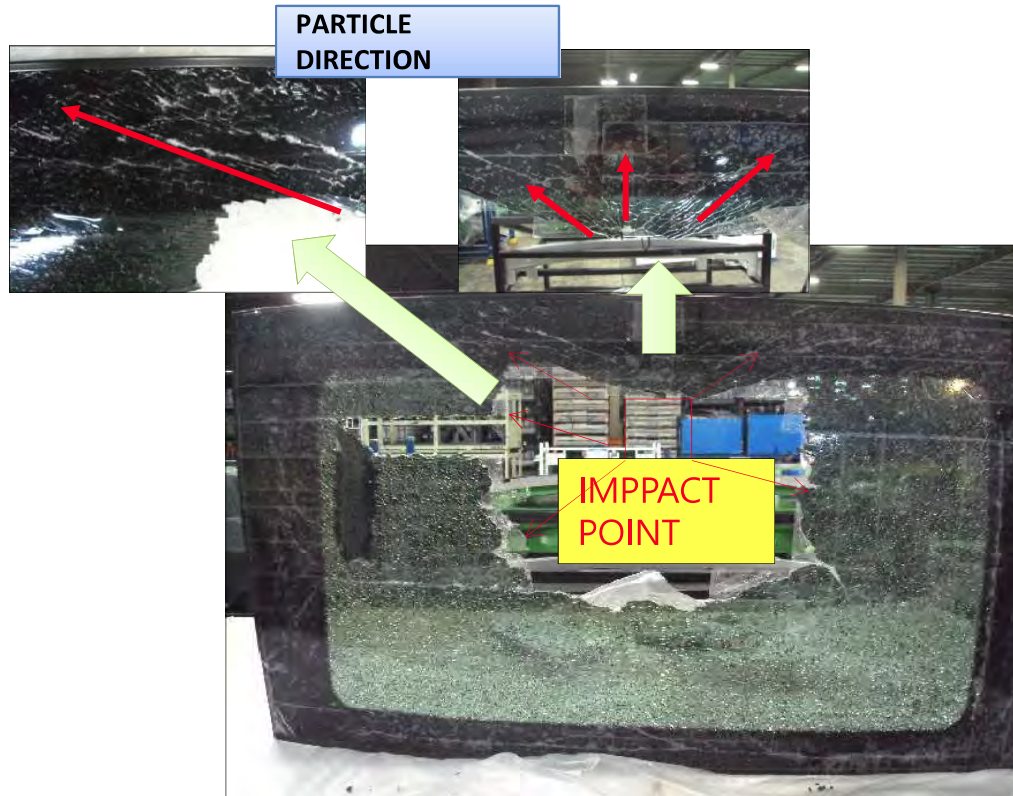
KAC COPORATION

QA ASSURANCE



■ QF SUNROOF SMALL PIECES REPORT

- OCCURANCE COUNTRY: NORTH AMERICA
MODEL : QF(TF) Front
CRASH POSITION: FRT CENTER AREA



※ RESULTS OF INVESTIGATION: SMALL PIECES GLASS WAS OCCURRED DUE TO OUTER IMPACT.



Correlation Analysis

Optima / Sorento / Sportage Sunroof Glass

Kia Motors America 03/25/2013

The Power to Surprise

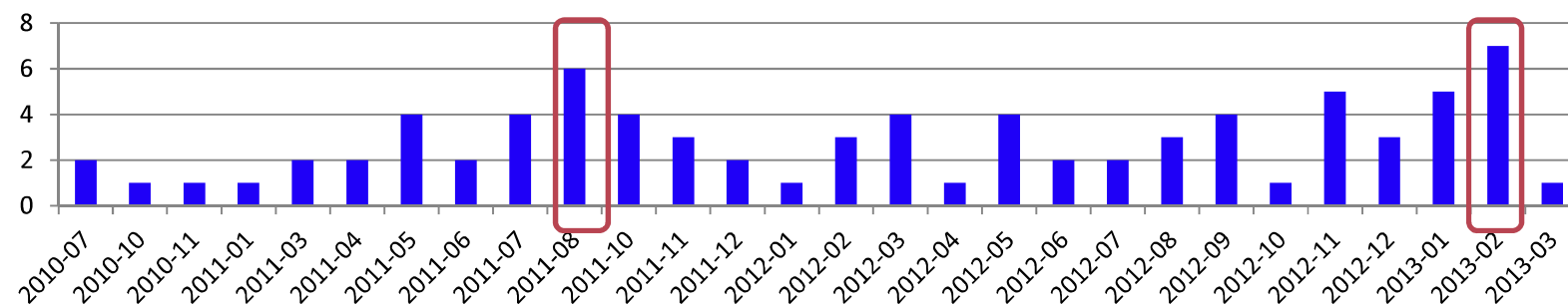
Panorama Glass Correlation Analysis Summary

Purpose

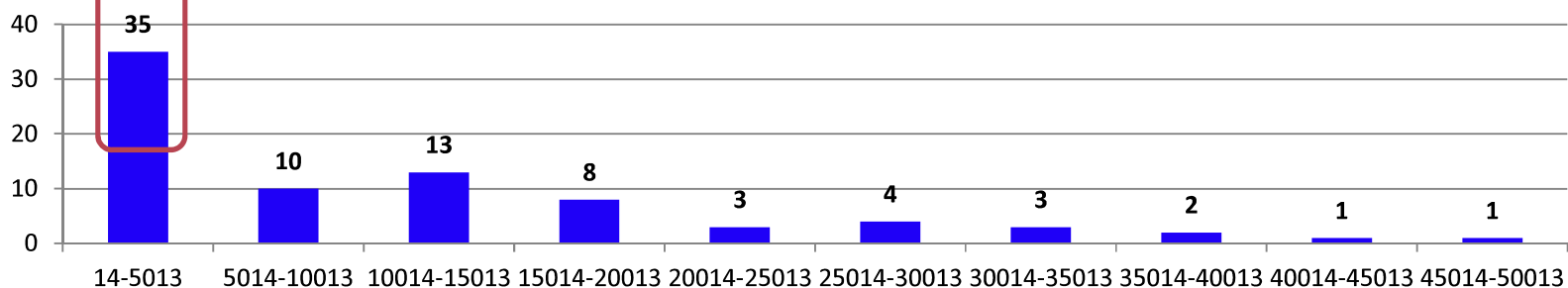
- Provide an in depth Analysis of the Panorama Sunroof Glass fragmentation claim data to Determine if there is a correlation between each case that may be contributing to this condition / complaint.

Analysis

Claims by RO Month



Claims by Mileage



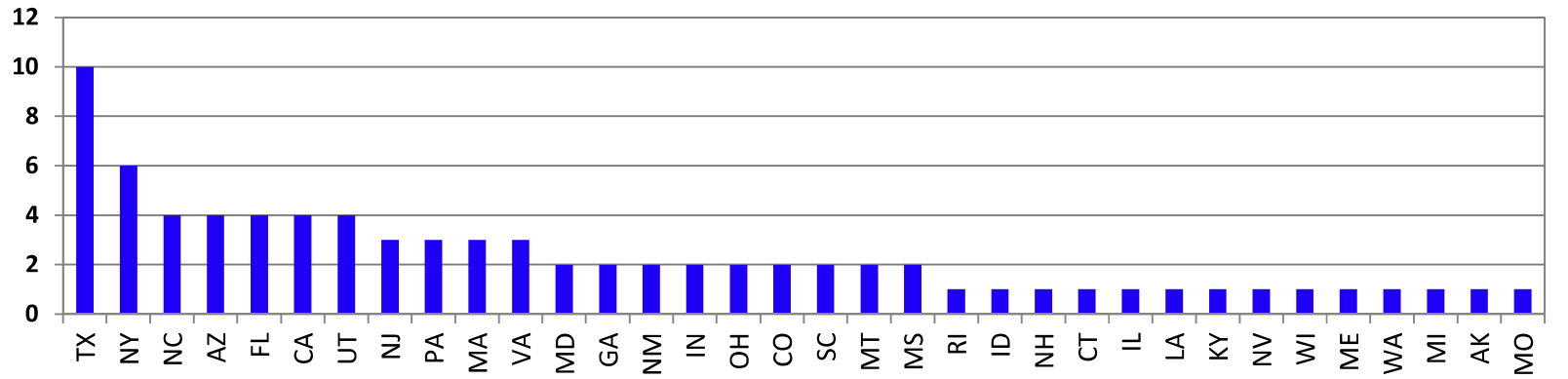
Conclusion

- **There is NO conclusive correlation in the data that suggest this condition is related to a certain factor / influence.**
- Based on the data, the two months with the highest claims per month were reported in Feb 2013 and Aug 2011 where there is a significant difference in temperature between both months.
- Additionally, the Majority of the claims reported were on vehicles with under 5K miles and 10 out of the 80 claims were identified in the state of **Texas** where highway speed limits are 75 mph and 80 mph on I-10 & I-20.
- **External Influences / Rock Impact continue to be identified through this investigation as a contributing factor during Field Investigation when the glass has been intact for evaluation.**

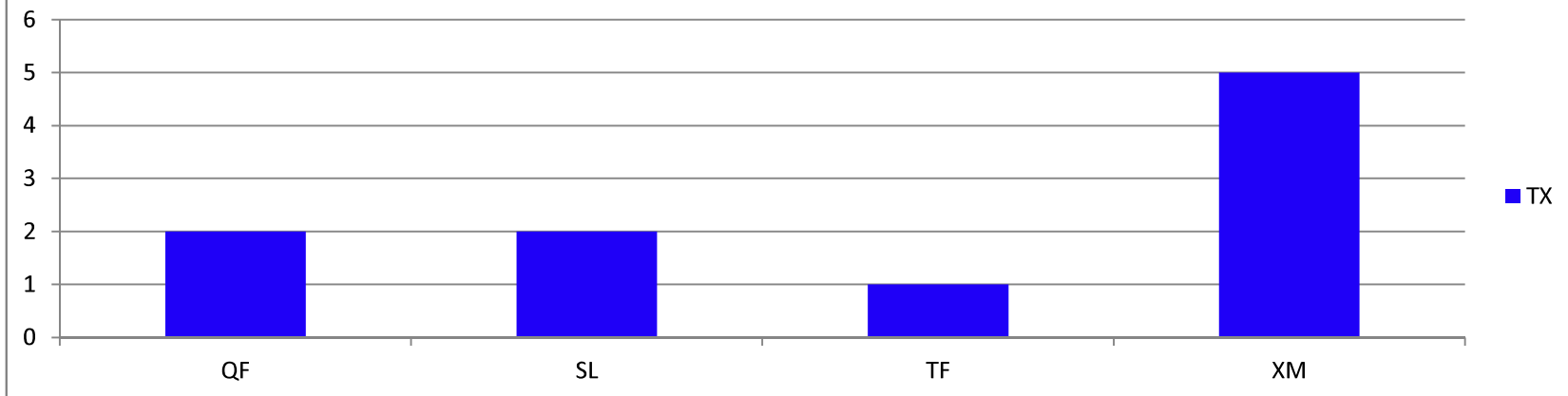
Panorama Glass Correlation Analysis

Analysis

Claims by State



Claims in State of Texas by Model



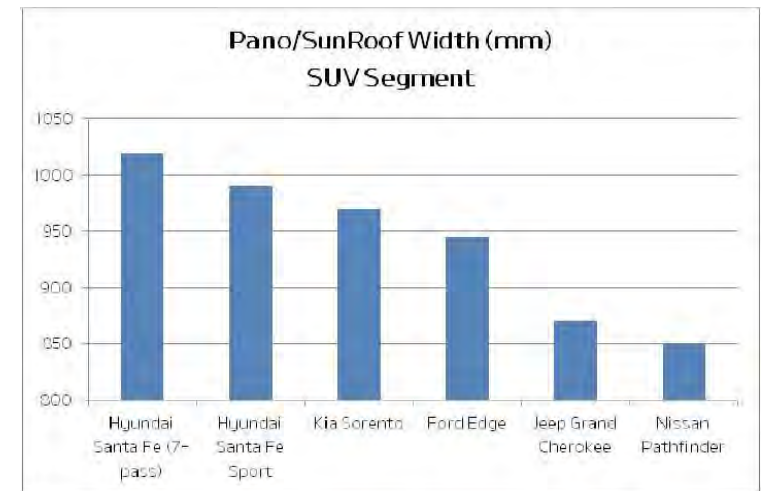
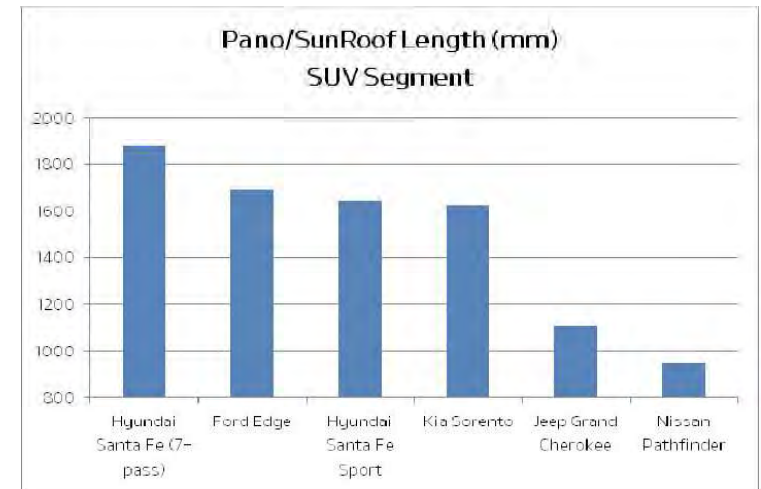
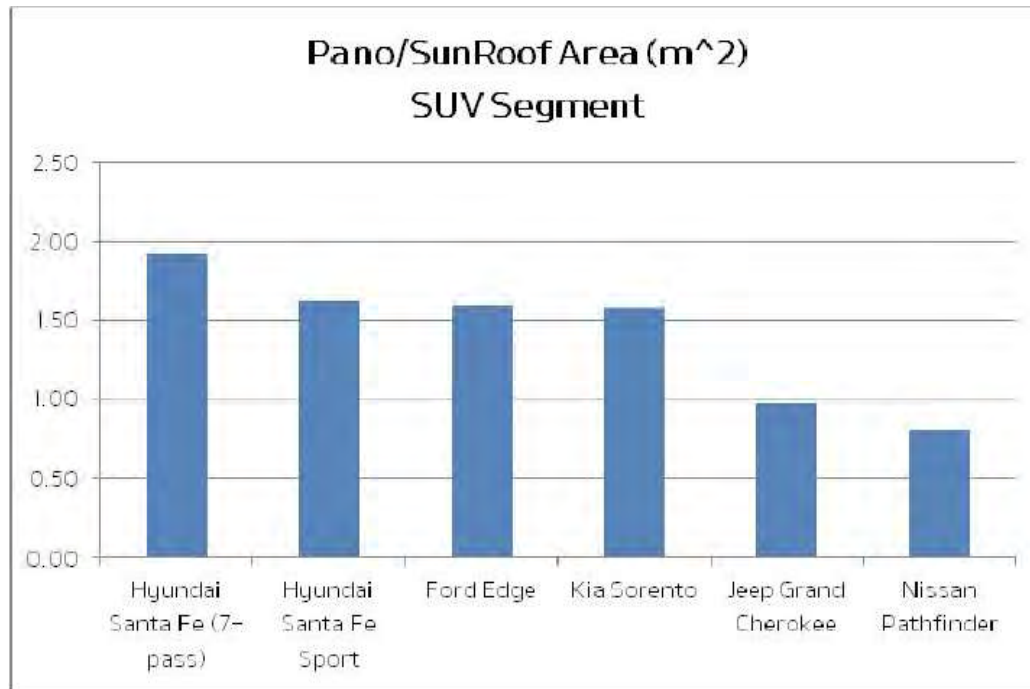


Pano/Sunroof Size Benchmark

Forward Model Product Quality 4/16/2013

The Power to Surprise

SUV Segment Benchmark

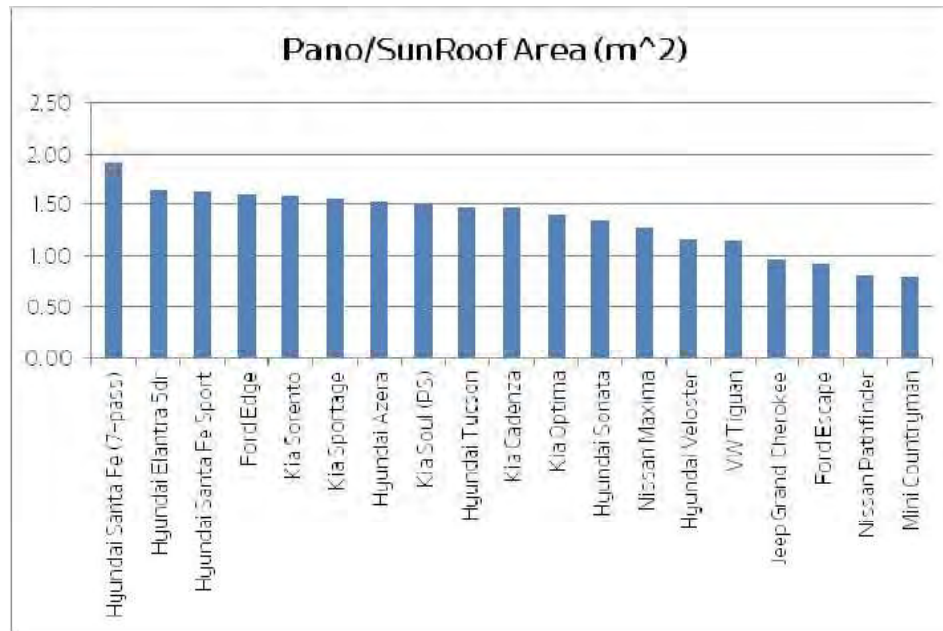


Model	Length (mm)	Width (mm)	Area (m ²)
Hyundai Santa Fe (7-pass)	1880	1020	1.92
Hyundai Santa Fe Sport	1645	990	1.63
Ford Edge	1695	945	1.60
Kia Sorento	1625	970	1.58
Jeep Grand Cherokee	1110	870	0.97
Nissan Pathfinder	950	850	0.81

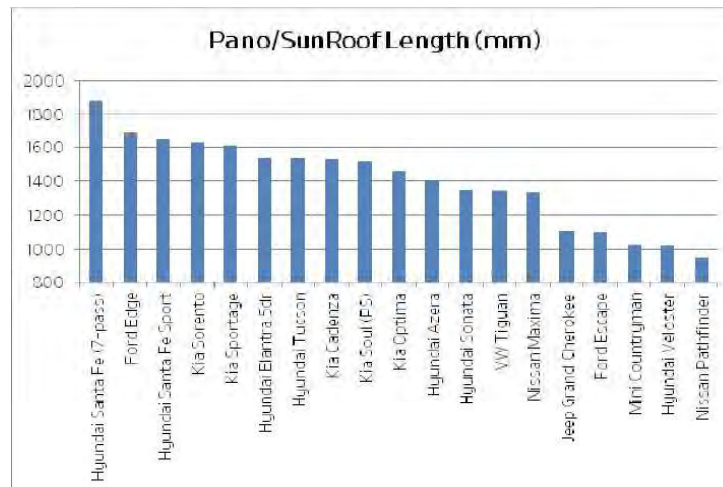
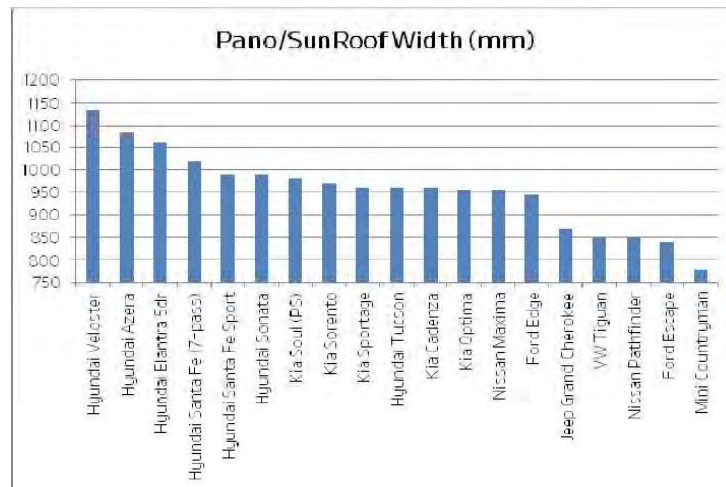
Comments

- ❖ Hyundai/KIA products have the largest pano/sunroof glass systems in segment, with exception of Ford Edge
- ❖ Jeep and Nissan are 30%+ shorter than Sorento and 11%+ narrower than Sorento
- ❖ Ford Edge is about the same size as Sorento

APPENDIX: Benchmark - Expanded



Segment	Model	Length (mm)	Width (mm)	Area (m ²)
Midsize Car	Kia Optima	1460	955	1.39
	Hyundai Sonata	1350	990	1.34
Large Car	Kia Cadenza	1530	960	1.47
	Hyundai Azera	1405	1085	1.52
	Nissan Maxima	1335	955	1.27
	Chevrolet Impala	n/a	n/a	n/a
Compact CUV	Kia Sportage	1610	960	1.55
	Hyundai Tucson	1535	960	1.47
	Ford Escape	1095	840	0.92
	VW Tiguan	1345	850	1.14
Midsize CUV	Kia Sorento	1625	970	1.58
	Hyundai Santa Fe Sport	1645	990	1.63
	Hyundai Santa Fe (7-pass)	1880	1020	1.92
	Ford Edge	1695	945	1.60
	Jeep Grand Cherokee	1110	870	0.97
	Nissan Pathfinder	950	850	0.81
Urban CUV / Small Car	Kia Soul (PS)	1520	980	1.49
	Mini Countryman	1025	780	0.80
	Hyundai Veloster	1020	1135	1.16
	Hyundai Elantra Sdr	1540	1060	1.63



Comments

- ❖ Hyundai/KIA products have some the largest pano/sunroof glass systems in the market

❑ Executive Summary Overview

Service Department

05.31.2013

Panorama Glass Explosion – XM / QF [TF] / SL

Background : Customer / Field complaints of Panorama Sunroof Glass Shatter

○ KMA PQ has Identified (2) Error States in which this Condition Occurs :

1. Customers experience condition while Driving at any Speed
2. Customers experience condition while Closing Door or Closing Windows

Risk Analysis : Currently 16 Reported Incidents to NHTSA

- TF : 2 Cases

○ **Risk Exposure** - Evaluated as '**LOW**' Risk due to **Only 2 NHTSA** complaints

- QF : 3 Cases

○ **Risk Exposure** - Evaluated as '**LOW**' Risk due to **Only 3 NHTSA** complaint – Cases were reviewed by KMA CA and PQ

- XM : 11 Cases

○ **Risk Exposure** – Evaluated as '**HIGH**' Risk due to **11 NHTSA** complaints

- SL : 0 Cases

○ **Risk Exposure** – Evaluated as '**LOW**' Risk due to **0 NHTSA** complaints

○ **No Injuries have been Reported to Date**

※ Competitor Case Analysis - Ford Recall (NHTSA, 04V442) :

- NHTSA Issued a Recall to Ford due to Higher than Normal Rear Hatch Glass Breakage
- NHTSA Customer Complaints = 296 / Customer Reported Injuries = 15

※ NEXT STEPS – KMA PQ on HIGH Alert / Readiness for Continued "Go and See" Field Investigations w/ Affiliates (KMMG/NAQC /Supplier) to Determine Root Cause.

- KMA Request KMC & Supplier TFT Assistance for Further Investigation to "Root Cause" as Issue is Complex
- KMC to investigate supplier sunroof heat treatment variability and material characteristics (heat expansion). - Complete
- KMC to investigate body opening cavity variability and sunroof dimension variability for potential interference - Complete
- KMC to investigate glass sample for material quality.- On going

Optima Sunroof Glass Status

Service Department

05.31.2013

Panorama Glass Explosion – QF [TF]

Model : 11~13MY Optima

Symptom : Panorama Glass Shatters
during Driving Condition or Window Operation

Count : Warranty Claims – 32

- 10 - 13MY QF
- 11 - 12MY QF
- 9 - 11MY TF
- 2 - 12MY TF

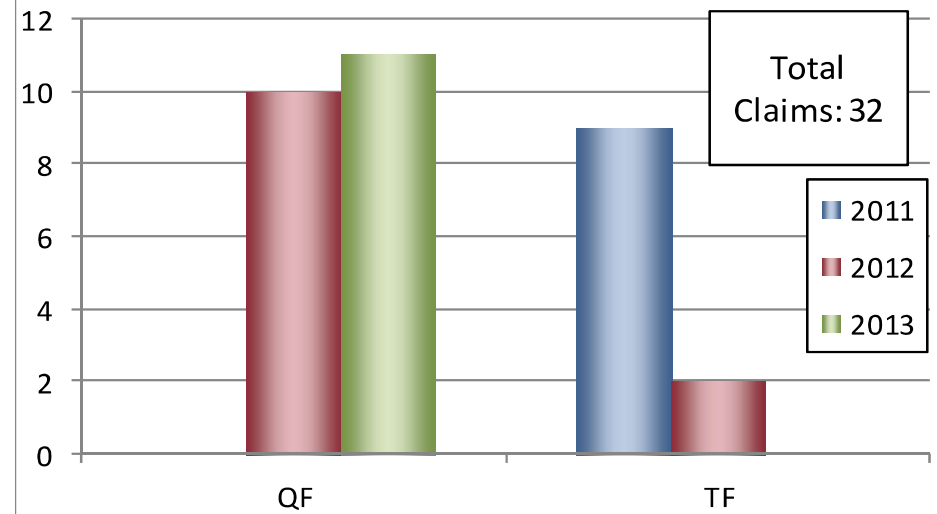
Cost : Warranty Claims - \$37,717

Field Action : Under Investigation

- KMA Controlled Test Plan Completed 11/26/2012

❖ Scope -Sunroof Glass Strain Test @ CPG on PQ
QF Fleet Vehicle for symptom Test & Evaluation

TF/QF Claims By Model Year



CA Cases	VOQ	Techline Cases
22 (11 QF, 11 TF)	5 (2 TF, 3 QF)	14 (8TF, 6 QF)

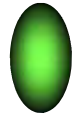
Field Issue is Complex to Investigate due to the Nature of Occurrence

- KMA PQ recovered Panorama Glass for Supplier (Webasto) to Analyze –No Issue Reported
- KMA PQ is Actively Investigating condition with Affiliates (KMMG / NAQC)

☐ Sorento Sunroof Glass Status

Service Department

05.31.2013



Panorama Glass Explosion - XMA

☐ Model : 11~13MY Sorento

☐ Symptom : Panorama Glass Shatters
during Driving Condition or Window Operation

☐ Count : Warranty Claims – 60

- 1 - 14MY
- 14 - 13MY
- 11 - 12MY
- 34 - 11MY

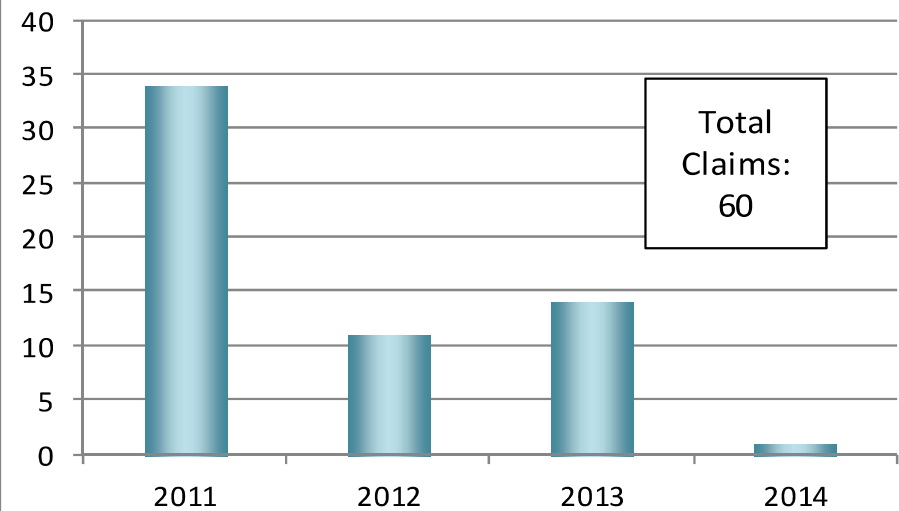
☐ Cost : Warranty Claims - \$56,578

☐ Field Action : Under Investigation

- KMA Controlled Test Plan completed 11/26/2012

❖ Scope -Sunroof Glass Strain Test @ CPG on PQ
XMa Fleet Vehicle for symptom Test & Evaluation

XM Claims By Model Year



CA Cases	VOQ	Techline Cases
26	11	17

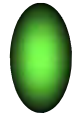
● Field Issue is Complex to Investigate due to the Nature of Occurrence

- Current Risk is High – KMA PQ to Investigate Improvement Options (Glass Protection Seal)
- Recent Go & See Investigation Identified Condition caused by External Influence (Impact)

☐ Sorento Sunroof Glass Status

Service Department

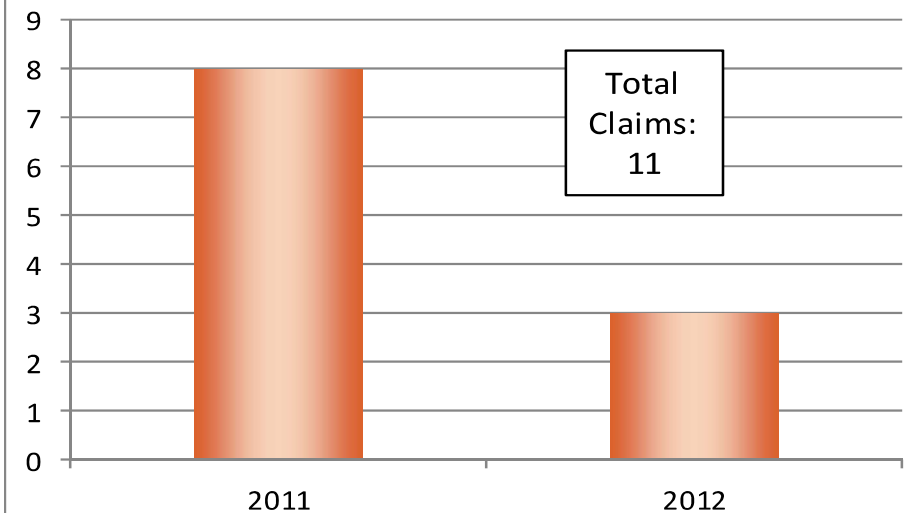
05.31.2013



Panorama Glass Explosion - SL

- ☐ Model : 11~13MY Sportage
- ☐ Symptom : Panorama Glass Shatters during Driving Condition or Window Operation
- ☐ Count : Warranty Claims – 11
 - 3 - 12MY
 - 8 - 13MY
- ☐ Cost : Warranty Claims - \$11,225
- ☐ Field Action : Under Investigation

SL Claims By Model Year




CA Cases	VOQ	Techline Cases
11	0	2

- Field Issue is Complex to Investigate due to the Nature of Occurrence



Customer Visit Report on XMA Glass Breakage (Case No.: T2373852)



Webasto Roof Systems, Inc.

11/20/2012



Table of Contents

- ◆ **Summary on Customer Concern**
- ◆ **Summary on Customer Visit**
- ◆ **Verification on Quality of Glass at Webasto**
- ◆ **Verification on Quality of Glass at Glass Supplier**
- ◆ **Appendix**
 - **Appendix A: Pictures for Impact Point**
 - **Appendix B: Picture for Glass under Curing**

Summary on Customer Concern



◆ Summary on customer concern

- Case no.: T2373852
- Date case received: 10/17/2012
- Model / Year: 2013 SORENTO EX AWD
- VIN: 5XYKUDA24DG^{REDACTED}
- Part no.: 81600-1U000 (panorama roof assembly)
- Problem description: Customer stated that she/he was passing a semi-truck on a highway and the panorama sunroof blew out.

- Here is summary on the customer complaint.



Case no.:
T2373852

Summary on Customer Visit



◆ Summary on customer visit

- Dealer name: Fox KIA
- Dealer location: Grand Rapids, MI
- Date visited: 10/18/2012
- Participants: Ralph Kimbell (KMMG), Louis Watts (Webasto), Gwen Mihuc (Guardian), Mike Diver (Guardian), Thomas Baek, Jack Flanagan (KMA)
- Key findings
 - The front glass panel was shattered, but the glass was secured to the brackets.
 - An impact point was identified approximately four to five inches back from the front trim panel on the right hand side of the sliding glass panel edge (see Appendix A for pictures).
 - The fragments of the shattered glass showed a good break pattern. Tempering of glass was good.

Verification on Quality of Glass at Webasto



◆ Verification on quality of glass at Webasto

- Investigation on glass build history
 - According to the barcode on the bracket, the front moving glass went through a normal production – no rework was done.
- Inspection set up on front glass at Webasto
 - Pre-assembly (Glass 2) process: 100% visual inspection at Inspection Station
 - Final assembly process: 100% visual inspection at three stations (FA 540, FA 560, and FA 580) including Final Inspection
- Peel test: Checks adhesion between glass and brackets
 - Sample size: One sample per week if there is a production run
 - Specification: Polyurethane shall not peel off the bracket or glass by hand.
 - Each sample is to be cured for 144 hours (6 days) before the test is performed (see Appendix B for a picture).

Verification on Quality of Glass at Glass Supplier



◆ Verification on quality of glass at glass supplier (Guardian Automotive)

- No issues with the tempering process of this glass.
 - No rework was performed.
- Impact (ball drop) test: Pass
 - Conducted on Six (6) 12 x 12 (300mm x 300mm) tempered glass samples (10/2/2012)
 - Specification: Sample does not break.
 - See the Excel file for the more details
- ECE breakout test: Pass
 - Specification: Minimum 40 and Maximum 400
 - Here is summary on the test results in 2012.
- Fracture weight test: Pass
 - Specification: Minimum 0 and Maximum 4.25
 - Here is summary on the test results in 2012.
- Tensile stress test: Pass
 - Specification: Pass 0 and fail 0.99
 - Here is summary on the test results in 2012.



Impact Test Result



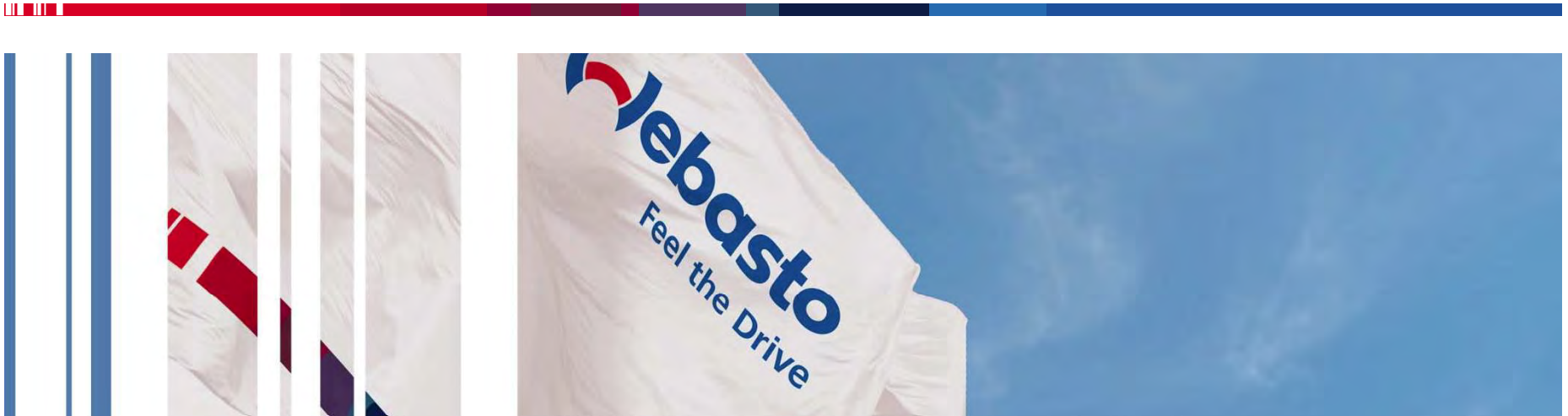
ECE Breakout Test



Fracture Weight Test



Tensile Stress Test



Appendix

Appendix A: Pictures for Impact Point



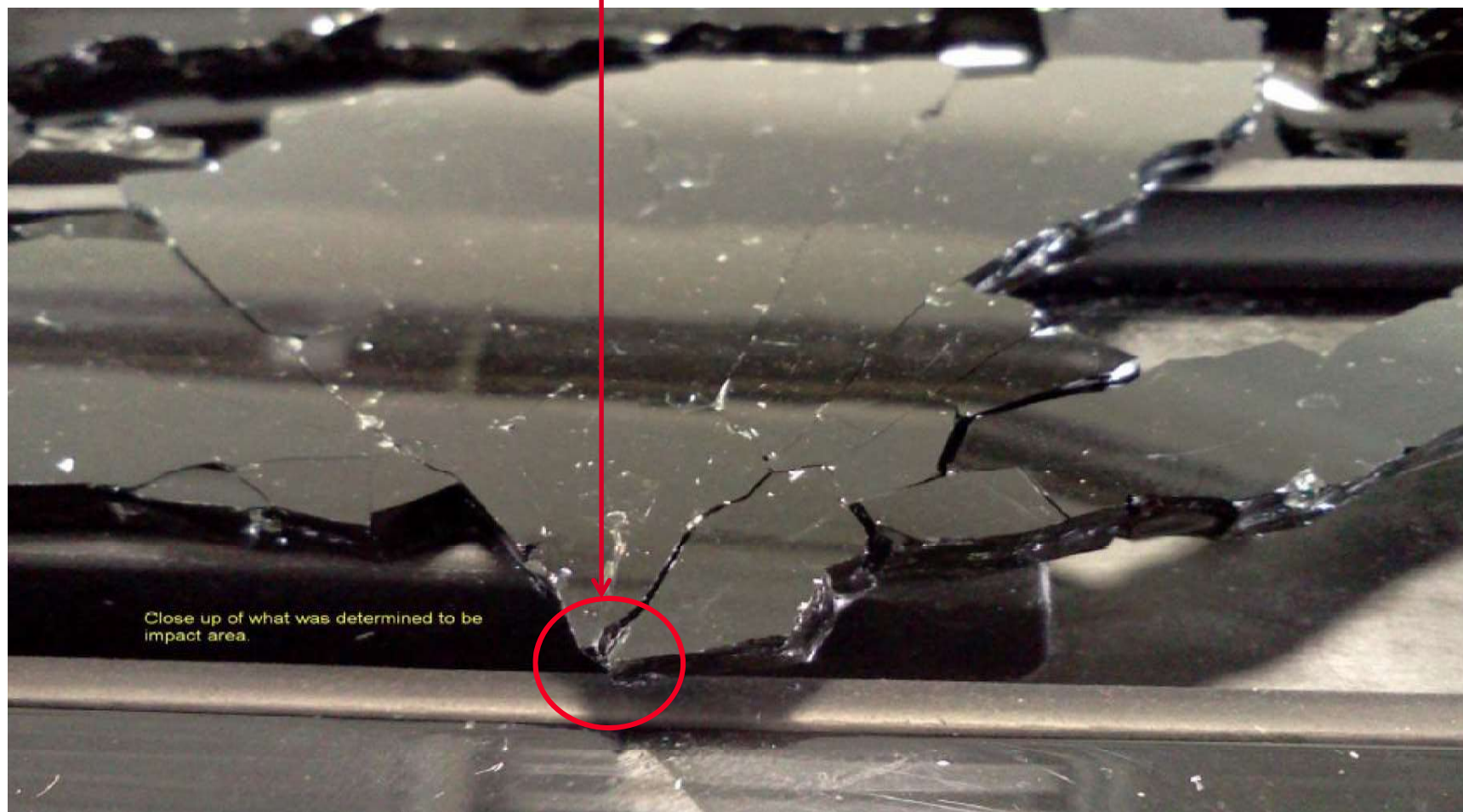
Impact Point



Appendix A: Pictures for Impact Point (Continued)



Impact Point (close up)



Appendix B: Picture for Glass under Curing



A front glass is under curing for peel test.



Evaluation Results

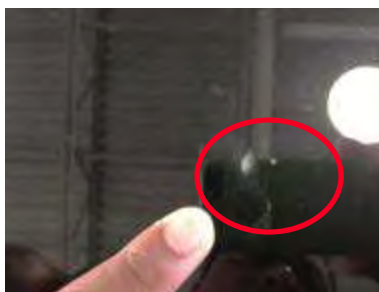


- After glass analysis by Guardian, damage to glass appears to have started on right side of the glass. No other areas on the glass still present on the vehicle showed a web-like break pattern as found on the right side. This web-like break pattern indicates where the crack began due to some sort of external impact to the glass.
- No foreign debris found within the sunroof track or vehicle.



Pictures directly above show how the glass did stay adhered to brackets showing no signs of e-coat separation and fragmented as tempered glass should.

Witness Markings on Rear Glass Panel



Some scratches were noticed on the rear glass. There are two potential causes:

These scratches could occur if something was indeed mounted to the roof and the glass was damaged during that process or (2) it could have been damaged by glass fragments from the front glass panel after it fractured on the highway.

Witness Markings on Roof



Dimple marking in the sheet metal on the left side of the antenna which may indicate the customer has used some sort of apparatus to mount something (Possibly kayak) to the roof which could potentially damage the panorama glass depending on what was mounted. However no roof rails were present. These markings were noticed during investigation of unit.



Dimple marking in the sheet metal on the right side of the antenna. Markings were evenly spaced away from the antenna on left and right.

Tensile Stress test						
Specification: Pass 0 Fail .99						
Location	Part	Test	Reading			
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	11-Jan-12	Shift 3	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	11-Jan-12	Shift 1	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	11-Jan-12	Shift 1	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	11-Jan-12	Shift 2	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	11-Jan-12	Shift 2	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	16-Feb-12	Shift 2	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	17-Feb-12	Shift 3	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	17-Feb-12	Shift 1	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	17-Feb-12	Shift 1	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	17-Feb-12	Shift 2	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	17-Feb-12	Shift 2	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	9-Mar-12	Shift A	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	9-Mar-12	Shift 1	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	9-Mar-12	Shift D	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	10-Mar-12	Shift D	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	2-May-12	Shift C	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	2-May-12	Shift C	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	3-May-12	Shift C	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	3-May-12	Shift A	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	9-Jun-12	Shift A	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	9-Jun-12	Shift C	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	27-Jun-12	Shift 2	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	27-Jun-12	Shift 2	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	27-Jun-12	Shift C	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	21-Jul-12	Shift A	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	21-Jul-12	Shift A	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	22-Jul-12	Shift A	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	22-Jul-12	Shift C	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	23-Jul-12	Shift C	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	9-Aug-12	Shift C	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	9-Aug-12	Shift A	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	7-Sep-12	Shift A	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	7-Sep-12	Shift D	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	8-Sep-12	Shift D	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	8-Sep-12	Shift D	

Tensile Stress test						
Specification: Pass 0 Fail .99						
Location	Part	Test	Reading			
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	10-Jan-12	Shift 1	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	10-Jan-12	Shift 1	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	10-Jan-12	Shift 2	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	10-Jan-12	Shift 2	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	10-Jan-12	Shift 3	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	15-Feb-12	Shift 2	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	15-Feb-12	Shift 2	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	15-Feb-12	Shift 3	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	16-Feb-12	Shift 1	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	16-Feb-12	Shift 1	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	6-Mar-12	Shift B	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	6-Mar-12	Shift B	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	6-Mar-12	Shift D	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	6-Mar-12	Shift D	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	7-Mar-12	Shift D	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	7-Mar-12	Shift B	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	1-May-12	Shift B	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	1-May-12	Shift D	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	1-May-12	Shift D	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	2-May-12	Shift D	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	2-May-12	Shift B	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	8-Jun-12	Shift C	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	8-Jun-12	Shift C	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	9-Jun-12	Shift C	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	28-Jun-12	Shift C	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	28-Jun-12	Shift A	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	28-Jun-12	Shift C	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	20-Jul-12	Shift B	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	20-Jul-12	Shift C	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	20-Jul-12	Shift C	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	21-Jul-12	Shift C	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	8-Aug-12	Shift D	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	8-Aug-12	Shift B	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	6-Sep-12	Shift A	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	6-Sep-12	Shift C	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	6-Sep-12	Shift C	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	7-Sep-12	Shift C	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	7-Sep-12	Shift A	

Fracture Weight Test			
Specification: Max 4.25 Min 0			
Test	Reading	Part	
Fracture Wgt	0.8	1/11/12	KIA FRONT
Fracture Wgt	1.3	1/11/12	KIA FRONT
Fracture Wgt	1.4	1/11/12	KIA FRONT
Fracture Wgt	0.9	1/11/12	KIA FRONT
Fracture Wgt	0.75	1/11/12	KIA FRONT
Fracture Wgt	0.6	1/11/12	KIA FRONT
Fracture Wgt	0.7	1/11/12	KIA FRONT
Fracture Wgt	0.6	1/11/12	KIA FRONT
Fracture Wgt	0.5	1/11/12	KIA FRONT
Fracture Wgt	0.8	2/16/12	KIA FRONT
Fracture Wgt	0.9	2/16/12	KIA FRONT
Fracture Wgt	0.4	2/17/12	KIA FRONT
Fracture Wgt	0.5	2/17/12	KIA FRONT
Fracture Wgt	0.6	2/17/12	KIA FRONT
Fracture Wgt	0.7	2/17/12	KIA FRONT
Fracture Wgt	1.4	2/17/12	KIA FRONT
Fracture Wgt	0.6	2/17/12	KIA FRONT
Fracture Wgt	0.6	2/17/12	KIA FRONT
Fracture Wgt	1.2	3/9/12	KIA FRONT
Fracture Wgt	1.1	3/9/12	KIA FRONT
Fracture Wgt	1	3/9/12	KIA FRONT
Fracture Wgt	0.9	3/9/12	KIA FRONT
Fracture Wgt	0.7	3/9/12	KIA FRONT
Fracture Wgt	0.6	3/10/12	KIA FRONT
Fracture Wgt	0.7	5/2/12	KIA FRONT
Fracture Wgt	0.4	5/2/12	KIA FRONT
Fracture Wgt	1.1	5/2/12	KIA FRONT
Fracture Wgt	1.1	5/3/12	KIA FRONT
Fracture Wgt	1	5/3/12	KIA FRONT
Fracture Wgt	0.8	5/3/12	KIA FRONT
Fracture Wgt	0.6	6/9/12	KIA FRONT
Fracture Wgt	1.3	6/9/12	KIA FRONT
Fracture Wgt	1.2	6/9/12	KIA FRONT
Fracture Wgt	0.8	6/9/12	KIA FRONT
Fracture Wgt	0.5	6/27/12	KIA FRONT
Fracture Wgt	0.6	6/27/12	KIA FRONT
Fracture Wgt	0.5	6/27/12	KIA FRONT
Fracture Wgt	0.5	6/27/12	KIA FRONT
Fracture Wgt	1	6/27/12	KIA FRONT
Fracture Wgt	1.1	6/27/12	KIA FRONT
Fracture Wgt	0.8	7/21/12	KIA FRONT
Fracture Wgt	1.2	7/21/12	KIA FRONT
Fracture Wgt	1	7/21/12	KIA FRONT
Fracture Wgt	0.9	7/21/12	KIA FRONT
Fracture Wgt	1.1	7/21/12	KIA FRONT
Fracture Wgt	1.1	7/22/12	KIA FRONT
Fracture Wgt	0.8	7/22/12	KIA FRONT
Fracture Wgt	1	7/22/12	KIA FRONT
Fracture Wgt	1.1	7/22/12	KIA FRONT
Fracture Wgt	1.2	7/23/12	KIA FRONT
Fracture Wgt	0.9	8/9/12	KIA FRONT
Fracture Wgt	0.7	8/9/12	KIA FRONT
Fracture Wgt	0.9	8/9/12	KIA FRONT
Fracture Wgt	2.2	9/7/12	KIA FRONT
Fracture Wgt	1.1	9/7/12	KIA FRONT
Fracture Wgt	1	9/8/12	KIA FRONT
Fracture Wgt	1.5	9/8/12	KIA FRONT

Fracture Weight Test			
Specification:		Max 4.25 Min 0	
Test	Reading	Part	
Fracture Wgt	0.8	1/10/12	KIA REAR
Fracture Wgt	1	1/10/12	KIA REAR
Fracture Wgt	0.9	1/10/12	KIA REAR
Fracture Wgt	0.5	1/10/12	KIA REAR
Fracture Wgt	0.7	1/10/12	KIA REAR
Fracture Wgt	0.7	1/10/12	KIA REAR
Fracture Wgt	0.9	1/10/12	KIA REAR
Fracture Wgt	2.1	2/15/12	KIA REAR
Fracture Wgt	0.8	2/15/12	KIA REAR
Fracture Wgt	2.1	2/15/12	KIA REAR
Fracture Wgt	1	2/15/12	KIA REAR
Fracture Wgt	1.2	2/16/12	KIA REAR
Fracture Wgt	1.7	2/16/12	KIA REAR
Fracture Wgt	1.6	2/16/12	KIA REAR
Fracture Wgt	1	2/16/12	KIA REAR
Fracture Wgt	0.8	2/16/12	KIA REAR
Fracture Wgt	0.7	2/16/12	KIA REAR
Fracture Wgt	1	2/16/12	KIA REAR
Fracture Wgt	1.1	3/6/12	KIA REAR
Fracture Wgt	0.9	3/6/12	KIA REAR
Fracture Wgt	1	3/6/12	KIA REAR
Fracture Wgt	1.2	3/6/12	KIA REAR
Fracture Wgt	0.6	3/6/12	KIA REAR
Fracture Wgt	1.2	3/7/12	KIA REAR
Fracture Wgt	1.3	3/7/12	KIA REAR
Fracture Wgt	1.4	3/7/12	KIA REAR
Fracture Wgt	0.9	3/7/12	KIA REAR
Fracture Wgt	0.4	5/1/12	KIA REAR
Fracture Wgt	0.8	5/1/12	KIA REAR
Fracture Wgt	1	5/1/12	KIA REAR
Fracture Wgt	1	5/2/12	KIA REAR
Fracture Wgt	0.9	5/2/12	KIA REAR
Fracture Wgt	1.6	5/2/12	KIA REAR
Fracture Wgt	0.8	6/8/12	KIA REAR
Fracture Wgt	1.1	6/8/12	KIA REAR
Fracture Wgt	1.3	6/8/12	KIA REAR
Fracture Wgt	1	6/9/12	KIA REAR
Fracture Wgt	1	6/28/12	KIA REAR
Fracture Wgt	1.1	6/28/12	KIA REAR
Fracture Wgt	2	6/28/12	KIA REAR
Fracture Wgt	3	6/28/12	KIA REAR
Fracture Wgt	0.6	6/28/12	KIA REAR
Fracture Wgt	0.75	7/20/12	KIA REAR
Fracture Wgt	0.7	7/20/12	KIA REAR
Fracture Wgt	0.7	7/20/12	KIA REAR
Fracture Wgt	0.9	7/20/12	KIA REAR
Fracture Wgt	0.9	7/20/12	KIA REAR
Fracture Wgt	0.8	7/21/12	KIA REAR
Fracture Wgt	1.1	8/8/12	KIA REAR
Fracture Wgt	1.1	8/8/12	KIA REAR
Fracture Wgt	1.4	8/8/12	KIA REAR
Fracture Wgt	1	9/6/12	KIA REAR
Fracture Wgt	1	9/6/12	KIA REAR
Fracture Wgt	1.2	9/6/12	KIA REAR
Fracture Wgt	0.6	9/7/12	KIA REAR
Fracture Wgt	0.9	9/7/12	KIA REAR
Fracture Wgt	2.1	9/7/12	KIA REAR
Fracture Wgt	1	9/7/12	KIA REAR
Fracture Wgt	1.1	9/7/12	KIA REAR

ECE Test					
Specification: Max 400 Min 40					
Loaction	Test	Break point	Reading	Part	
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	197	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	64	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	232.5	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	49	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	173	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	62.5	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	234	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	82	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	203	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	66.5	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	155	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	62.5	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	153	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	77	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	160	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	67	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	205	16-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	65.5	16-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	192	16-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	61	16-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	235.5	17-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	64	17-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	283	17-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	87.5	17-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	313	17-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	107	17-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	253	17-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	91	17-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	171	17-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	70	17-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	168	17-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	83	17-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	205	9-Mar-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	69	9-Mar-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	256	9-Mar-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	93.5	9-Mar-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	168	9-Mar-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	110.5	9-Mar-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	297	10-Mar-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	110.5	10-Mar-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	313	10-Mar-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	95	10-Mar-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	191	2-May-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	88.5	2-May-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	275	2-May-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	106	2-May-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	218	3-May-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	100	3-May-12	Webasto Frt: 2916581

Tempering QC ECE Breakout	Brkpt 4 MAX <S>	251.5	3-May-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	107	3-May-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	239.5	3-May-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	100	3-May-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	258	3-May-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	99	3-May-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	180	9-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	87	9-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	226	9-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	98	9-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	164.5	9-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	80	9-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	166.5	9-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	76	9-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	208	10-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	84	10-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	226	27-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	93	27-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	214	27-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	55	27-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	201	27-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	83	27-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	180	27-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	66	27-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	204	27-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	63.5	27-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	182.5	27-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	81.5	27-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	218	8-Aug-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	61	8-Aug-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	204	9-Aug-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	71	9-Aug-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	189	9-Aug-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	86	9-Aug-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	197	9-Aug-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	94	9-Aug-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	217	9-Aug-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	96.5	9-Aug-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	254	9-Aug-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	139	9-Aug-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	206	7-Sep-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	112	7-Sep-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	154	7-Sep-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	66	7-Sep-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	191	7-Sep-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	76	7-Sep-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	171	7-Sep-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	97	7-Sep-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	153	8-Sep-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	71	8-Sep-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	168	8-Sep-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	70	8-Sep-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	217	8-Sep-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	92	8-Sep-12	Webasto Frt: 2916581

ECE Test					
Specification: Max 400 Min 40					
Location	Test	Break point	Reading	Part	Part
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	202	10-Jan-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	94.5	10-Jan-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	229	10-Jan-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	122.5	10-Jan-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	184	10-Jan-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	77	10-Jan-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	191	10-Jan-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	93	10-Jan-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	208.5	11-Jan-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	99	11-Jan-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	214.5	11-Jan-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	109.5	11-Jan-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	116	15-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	76.5	15-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	209.5	16-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	58	16-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	209.5	16-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	51	16-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	209.5	16-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	66.5	16-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	209.5	16-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	46	16-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	234.5	16-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	69	16-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	197.5	16-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	85	16-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	202	16-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	62	16-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	188.5	6-Mar-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	78.5	6-Mar-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	157	6-Mar-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	72.5	6-Mar-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	139	6-Mar-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	67	6-Mar-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	198.5	7-Mar-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	60.5	7-Mar-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	67.5	7-Mar-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	67.5	7-Mar-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	258	1-May-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	111	1-May-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	159	1-May-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	76	1-May-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	174	2-May-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	88	2-May-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	130	2-May-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	98	2-May-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	194.5	2-May-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	87.5	2-May-12	Webasto Rr: 2916579

Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	212	2-May-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	73	2-May-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	147	2-May-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	82	2-May-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	223.5	8-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	103.5	8-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	173	8-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	93	8-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	170	9-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	99	9-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	145	9-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	73.5	9-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	180	9-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	87	9-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	226	9-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	98	9-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	244	27-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	82	27-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	226	27-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	93	27-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	210	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	71.5	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	184	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	76.5	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	187.5	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	70	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	186	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	61	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	197	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	66	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	189	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	62	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	168	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	57	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	188.5	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	66	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	148.5	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	54.5	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	64.5	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	201	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	201	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	64.5	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	224.5	8-Aug-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	60	8-Aug-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	184	8-Aug-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	77	8-Aug-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	146	8-Aug-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	44.5	8-Aug-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	162	8-Aug-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	62	8-Aug-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	180	8-Aug-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	72.5	8-Aug-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	207	8-Aug-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	64	8-Aug-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	185.5	6-Sep-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	102	6-Sep-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	213	6-Sep-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	88	6-Sep-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	162	7-Sep-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	90	7-Sep-12	Webasto Rr: 2916579



Webasto Kia Sunroof Impact Test Results

Tested By: Tim Scheurich 10/2/2012

Procedure: Six (6) 12 x 12 (300mm x 300mm) Tempered glass samples of the construction used for Webasto Kia Front and Rear Sunroofs were tested per the ANSI/SAE Z26.1-1996 Standard, Test 6, 3.05m (10') ball drop. This test is substantially the same as the 227 gram ball drop test for ECE Reg 43 and Chinese Std GB-9656-2003, except the ANSI test height exceeds the other two. Passing of the ANSI test constitutes passing the requirements of all three standards.

Test height 3.05m (10')

Ball weight: 227 gm (0.5lb)

Sample must not break.

Pass / Fail

Sample 1	Pass
Sample 2	Pass
Sample 3	Pass
Sample 4	Pass
Sample 5	Pass
Sample 6	Pass

Reported by: Mark Shire, Quality Supervisor



Technical Assistance Center Case Report

Printed By:RLevy-TL

Case Number -T2373852

10/17/2012 08:23:43 AM

Vehicle Data

Model/Year: 2013 SORENTO EX AWD

Engine: G6DCCS829698

Model Code: 74442

VIN: 5XYKUDA24DQREDACTED

Mileage: 3339

Prod Date: 7/17/2012

Warranty Start Date: 9/4/2012

Port Options: CM, CN, CO, FA1, SS, WL

Factory Options: LK1, LK7, LM1, LM2, LM3, LM5, LPK, PK2, PM1, PN3, PN5, PN6, PO3, PO4

Freeze Frame Data

STFT Bank1:	LTFT Bank1:	Fuel Status Bank:
STFT Bank2:	LTFT Bank2:	Fuel Status Bank 2:
RPM:	Coolant Temp:	CALC Load:
Vehicle Speed:	APS Sensor 1% :	APS Sensor 2% :
Absolute TPS 1% :	Absolute TPS 2% :	Engine Run Time :

Dealer/Contact Data

Dealer: MI022 Fox Kia

Phone: (616) 942-5000

Fax: (616) 855-0086

Contact: Jason Powell

Contact Title:

Service District: CE11

Case Details

Title: Damage - General # sunroof glass shattered

Symptom: Damage (General)

System: Body Interior & Exterior

Component:

Resolution:

Solution ID:

Case History

*** NOTES 10/17/2012 08:15:07 AM clarify Action Type: Manager review
 *** Performed by contact: Jason Powell, *08302010063513
 *** This is a Request for Assistance ***

Problem Description :
 customer states they were passing a semi truck on the highway and their panoramic sunroof blew out, covering vehicle and customer in glass. customer states they dont believe anything hit glass. Have we seen any cases like this?

Diagnostics Performed :
 verify glass broken, inspect for obvious signs of impact and checked for any obvious issues with sunroof track. No cause found.

*** CASE DISPATCHED 10/17/2012 08:15:10 AM clarify
 *** Performed by contact: Jason Powell, *08302010063513
 from WIP default to Queue TL_Sorento_Sportage.

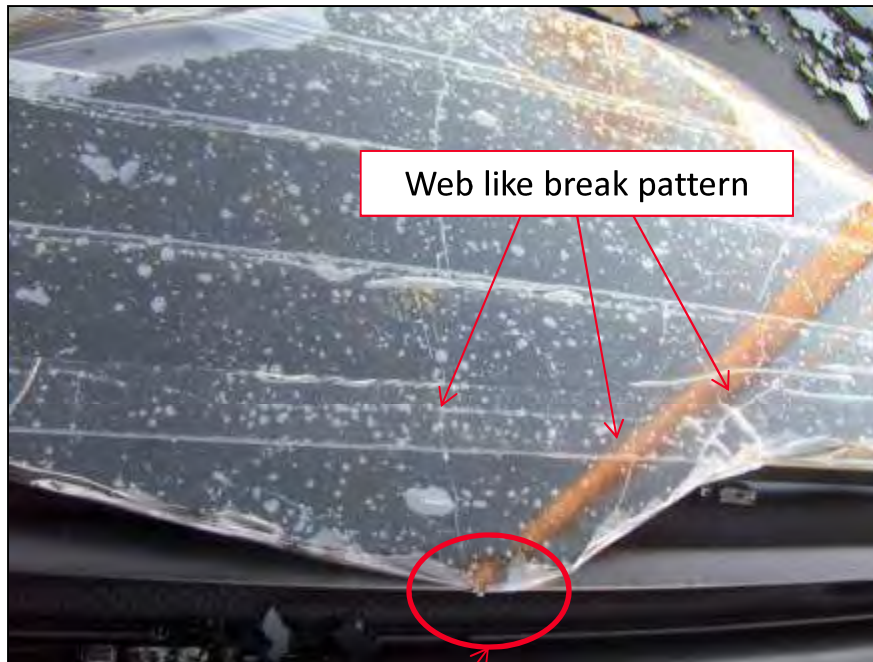
*** CASE YANKED 10/17/2012 08:18:02 AM RLevy-TL
 Yanked by RLevy-TL into WIPbin default.

*** PHONE LOG 10/17/2012 08:20:54 AM RLevy-TL Action Type: Web Contact
 Advice 1: Please don't do anything until you are contacted by someone from Kia Motors America.

*** CASE PRIORITY CHANGED 10/17/2012 09:23:35 AM RLevy-TL
 Case Priority Changed

*****End Case Report T2373852*****

Evaluation Results



- After glass analysis, damage to glass appears to have started at the front of the glass toward the right side of the vehicle. No other areas on the glass present on the vehicle showed a web-like break pattern as found in this area. This web-like break pattern indicates where the crack began due to some sort of external impact to the glass which could have occurred prior to glass fracturing.
- No foreign debris found within the sunroof track or vehicle.

Evaluation Results



- Pictures directly above show how the glass did stay adhered to brackets showing no signs of e-coat separation and fragmented as tempered glass should.
- All brackets were shipped back to Webasto for additional testing to verify no concerns.
- Sunroof history can also be checked by Webasto using the barcode label on one of the brackets. This information will yield information about if the panel was repaired for any concerns at Webasto.

Evaluation Results



- During evaluation it was noticed that there was some paint damage at the rear of the vehicle on the painted surface. This could have been caused by glass fragments that blew back after the front panel fractured. Fragments could have been blown back as the vehicle was towed in to dealer for repair also.
- This has not been noticed on any other prior investigations for similar concerns.



- Similar damage was also noticed on the spoiler as seen in the photo to the left.



XM Panorama Glass Investigation

Quality Assurance Team | 2012.11. 10

Prepared	MGR	HOD
R. Kimbell		

KR-GA-GAF-F-0035
Rev. Date: 6/26/2012
Rev. Level: 01

Printed Copy for Reference Only

The Power to Surprise

XM Panorama Glass Investigation



Customer Complaint

- Customer states that they were driving with the sunroof glass panel closed and as they were making a turn the front glass panel fractured. Customer does not recall hearing any sort of impact to the glass at that time. Unit was towed in to dealer.
- Location: Poughkeepsie, NY, Dutchess KIA (NY099)

Investigation Details

➤ Participants:

- Ralph Kimbell (KMMG), Louis Watts (Webasto), Chris Capuzzo (KMA)

➤ Vehicle Information:

- VIN: 5XYKWD26BG^{REDACTED} 2011 Sorento SX AWD
- Production Date: 8/16/2010
- Mileage: 26,573
- Service History: No related internal repair history at KMMG and no related external repair history.



➤ Evaluation Results:

- During evaluation there was some damage to the roof at the rear sunroof panel.
- After initial analysis of glass fragments, tempering of glass appears to be within specification.
- After initial evaluation of all the brackets, no e-coat separation was noticed. Visual inspection showed glass still adhered to all brackets. However all brackets were returned to supplier for further analysis.
- **After glass analysis by Webasto, KMMG and KMA, damage to glass appears to have started in the front of the glass on the right side of the vehicle. No other areas on the glass present showed a web-like break pattern as found on the at the front right side. The web-like break pattern indicates where the crack began due to some sort of external impact to the glass. Although customer did not hear anything at the time of the fracture, impact could have occurred previously and glass did not fully fracture immediately but rather just damaged the edge of the glass. Damage to the edge of the glass could lead to a failure of this magnitude.**



Next Steps

- QA to review process at Glovis to verify proper handling of glass and ensure glass is not damaged prior to install.
- QA plans to have glass fragments evaluated independently of Guardian to verify tempering and glass quality.
- Webasto obtained all brackets from unit for further testing. Supplier will also check pano build history using barcode present on bracket to verify this pano roof had no prior repair concerns. All information will be included in their report.
- Webasto will also ship back some glass fragments to Guardian (Glass Supplier) for further analysis. Results should be submitted in report.

Tensile Stress test						
Specification: Pass 0 Fail .99						
Loaction	Part	Test	Reading			
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	11-Jan-12	Shift 3	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	11-Jan-12	Shift 1	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	11-Jan-12	Shift 1	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	11-Jan-12	Shift 2	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	11-Jan-12	Shift 2	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	16-Feb-12	Shift 2	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	17-Feb-12	Shift 3	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	17-Feb-12	Shift 1	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	17-Feb-12	Shift 1	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	17-Feb-12	Shift 2	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	17-Feb-12	Shift 2	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	9-Mar-12	Shift A	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	9-Mar-12	Shift 1	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	9-Mar-12	Shift D	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	10-Mar-12	Shift D	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	2-May-12	Shift C	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	2-May-12	Shift C	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	3-May-12	Shift C	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	3-May-12	Shift A	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	9-Jun-12	Shift A	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	9-Jun-12	Shift C	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	27-Jun-12	Shift 2	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	27-Jun-12	Shift 2	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	27-Jun-12	Shift C	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	21-Jul-12	Shift A	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	21-Jul-12	Shift A	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	22-Jul-12	Shift A	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	22-Jul-12	Shift C	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	23-Jul-12	Shift C	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	9-Aug-12	Shift C	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	9-Aug-12	Shift A	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	7-Sep-12	Shift A	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	7-Sep-12	Shift D	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	8-Sep-12	Shift D	
Tempering QC	Kia Ft Sunroof	Tensile Stress	0	8-Sep-12	Shift D	

Tensile Stress test						
Specification: Pass 0 Fail .99						
Location	Part	Test	Reading			
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	10-Jan-12	Shift 1	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	10-Jan-12	Shift 1	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	10-Jan-12	Shift 2	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	10-Jan-12	Shift 2	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	10-Jan-12	Shift 3	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	15-Feb-12	Shift 2	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	15-Feb-12	Shift 2	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	15-Feb-12	Shift 3	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	16-Feb-12	Shift 1	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	16-Feb-12	Shift 1	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	6-Mar-12	Shift B	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	6-Mar-12	Shift B	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	6-Mar-12	Shift D	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	6-Mar-12	Shift D	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	7-Mar-12	Shift D	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	7-Mar-12	Shift B	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	1-May-12	Shift B	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	1-May-12	Shift D	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	1-May-12	Shift D	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	2-May-12	Shift D	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	2-May-12	Shift B	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	8-Jun-12	Shift C	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	8-Jun-12	Shift C	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	9-Jun-12	Shift C	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	28-Jun-12	Shift C	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	28-Jun-12	Shift A	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	28-Jun-12	Shift C	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	20-Jul-12	Shift B	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	20-Jul-12	Shift C	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	20-Jul-12	Shift C	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	21-Jul-12	Shift C	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	8-Aug-12	Shift D	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	8-Aug-12	Shift B	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	6-Sep-12	Shift A	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	6-Sep-12	Shift C	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	6-Sep-12	Shift C	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	7-Sep-12	Shift C	
Tempering QC	Kia Rr Sunroof	Tensile Stress	0	7-Sep-12	Shift A	

Fracture Weight Test			
Specification: Max 4.25 Min 0			
Test	Reading	Part	
Fracture Wgt	0.8	1/11/12	KIA FRONT
Fracture Wgt	1.3	1/11/12	KIA FRONT
Fracture Wgt	1.4	1/11/12	KIA FRONT
Fracture Wgt	0.9	1/11/12	KIA FRONT
Fracture Wgt	0.75	1/11/12	KIA FRONT
Fracture Wgt	0.6	1/11/12	KIA FRONT
Fracture Wgt	0.7	1/11/12	KIA FRONT
Fracture Wgt	0.6	1/11/12	KIA FRONT
Fracture Wgt	0.5	1/11/12	KIA FRONT
Fracture Wgt	0.8	2/16/12	KIA FRONT
Fracture Wgt	0.9	2/16/12	KIA FRONT
Fracture Wgt	0.4	2/17/12	KIA FRONT
Fracture Wgt	0.5	2/17/12	KIA FRONT
Fracture Wgt	0.6	2/17/12	KIA FRONT
Fracture Wgt	0.7	2/17/12	KIA FRONT
Fracture Wgt	1.4	2/17/12	KIA FRONT
Fracture Wgt	0.6	2/17/12	KIA FRONT
Fracture Wgt	0.6	2/17/12	KIA FRONT
Fracture Wgt	1.2	3/9/12	KIA FRONT
Fracture Wgt	1.1	3/9/12	KIA FRONT
Fracture Wgt	1	3/9/12	KIA FRONT
Fracture Wgt	0.9	3/9/12	KIA FRONT
Fracture Wgt	0.7	3/9/12	KIA FRONT
Fracture Wgt	0.6	3/10/12	KIA FRONT
Fracture Wgt	0.7	5/2/12	KIA FRONT
Fracture Wgt	0.4	5/2/12	KIA FRONT
Fracture Wgt	1.1	5/2/12	KIA FRONT
Fracture Wgt	1.1	5/3/12	KIA FRONT
Fracture Wgt	1	5/3/12	KIA FRONT
Fracture Wgt	0.8	5/3/12	KIA FRONT
Fracture Wgt	0.6	6/9/12	KIA FRONT
Fracture Wgt	1.3	6/9/12	KIA FRONT
Fracture Wgt	1.2	6/9/12	KIA FRONT
Fracture Wgt	0.8	6/9/12	KIA FRONT
Fracture Wgt	0.5	6/27/12	KIA FRONT
Fracture Wgt	0.6	6/27/12	KIA FRONT
Fracture Wgt	0.5	6/27/12	KIA FRONT
Fracture Wgt	0.5	6/27/12	KIA FRONT
Fracture Wgt	1	6/27/12	KIA FRONT
Fracture Wgt	1.1	6/27/12	KIA FRONT
Fracture Wgt	0.8	7/21/12	KIA FRONT
Fracture Wgt	1.2	7/21/12	KIA FRONT
Fracture Wgt	1	7/21/12	KIA FRONT
Fracture Wgt	0.9	7/21/12	KIA FRONT
Fracture Wgt	1.1	7/21/12	KIA FRONT
Fracture Wgt	1.1	7/22/12	KIA FRONT
Fracture Wgt	0.8	7/22/12	KIA FRONT
Fracture Wgt	1	7/22/12	KIA FRONT
Fracture Wgt	1.1	7/22/12	KIA FRONT
Fracture Wgt	1.2	7/23/12	KIA FRONT
Fracture Wgt	0.9	8/9/12	KIA FRONT
Fracture Wgt	0.7	8/9/12	KIA FRONT
Fracture Wgt	0.9	8/9/12	KIA FRONT
Fracture Wgt	2.2	9/7/12	KIA FRONT
Fracture Wgt	1.1	9/7/12	KIA FRONT
Fracture Wgt	1	9/8/12	KIA FRONT
Fracture Wgt	1.5	9/8/12	KIA FRONT

Fracture Weight Test			
Specification:		Max 4.25 Min 0	
Test	Reading	Part	
Fracture Wgt	0.8	1/10/12	KIA REAR
Fracture Wgt	1	1/10/12	KIA REAR
Fracture Wgt	0.9	1/10/12	KIA REAR
Fracture Wgt	0.5	1/10/12	KIA REAR
Fracture Wgt	0.7	1/10/12	KIA REAR
Fracture Wgt	0.7	1/10/12	KIA REAR
Fracture Wgt	0.9	1/10/12	KIA REAR
Fracture Wgt	2.1	2/15/12	KIA REAR
Fracture Wgt	0.8	2/15/12	KIA REAR
Fracture Wgt	2.1	2/15/12	KIA REAR
Fracture Wgt	1	2/15/12	KIA REAR
Fracture Wgt	1.2	2/16/12	KIA REAR
Fracture Wgt	1.7	2/16/12	KIA REAR
Fracture Wgt	1.6	2/16/12	KIA REAR
Fracture Wgt	1	2/16/12	KIA REAR
Fracture Wgt	0.8	2/16/12	KIA REAR
Fracture Wgt	0.7	2/16/12	KIA REAR
Fracture Wgt	1	2/16/12	KIA REAR
Fracture Wgt	1.1	3/6/12	KIA REAR
Fracture Wgt	0.9	3/6/12	KIA REAR
Fracture Wgt	1	3/6/12	KIA REAR
Fracture Wgt	1.2	3/6/12	KIA REAR
Fracture Wgt	0.6	3/6/12	KIA REAR
Fracture Wgt	1.2	3/7/12	KIA REAR
Fracture Wgt	1.3	3/7/12	KIA REAR
Fracture Wgt	1.4	3/7/12	KIA REAR
Fracture Wgt	0.9	3/7/12	KIA REAR
Fracture Wgt	0.4	5/1/12	KIA REAR
Fracture Wgt	0.8	5/1/12	KIA REAR
Fracture Wgt	1	5/1/12	KIA REAR
Fracture Wgt	1	5/2/12	KIA REAR
Fracture Wgt	0.9	5/2/12	KIA REAR
Fracture Wgt	1.6	5/2/12	KIA REAR
Fracture Wgt	0.8	6/8/12	KIA REAR
Fracture Wgt	1.1	6/8/12	KIA REAR
Fracture Wgt	1.3	6/8/12	KIA REAR
Fracture Wgt	1	6/9/12	KIA REAR
Fracture Wgt	1	6/28/12	KIA REAR
Fracture Wgt	1.1	6/28/12	KIA REAR
Fracture Wgt	2	6/28/12	KIA REAR
Fracture Wgt	3	6/28/12	KIA REAR
Fracture Wgt	0.6	6/28/12	KIA REAR
Fracture Wgt	0.75	7/20/12	KIA REAR
Fracture Wgt	0.7	7/20/12	KIA REAR
Fracture Wgt	0.7	7/20/12	KIA REAR
Fracture Wgt	0.9	7/20/12	KIA REAR
Fracture Wgt	0.9	7/20/12	KIA REAR
Fracture Wgt	0.8	7/21/12	KIA REAR
Fracture Wgt	1.1	8/8/12	KIA REAR
Fracture Wgt	1.1	8/8/12	KIA REAR
Fracture Wgt	1.4	8/8/12	KIA REAR
Fracture Wgt	1	9/6/12	KIA REAR
Fracture Wgt	1	9/6/12	KIA REAR
Fracture Wgt	1.2	9/6/12	KIA REAR
Fracture Wgt	0.6	9/7/12	KIA REAR
Fracture Wgt	0.9	9/7/12	KIA REAR
Fracture Wgt	2.1	9/7/12	KIA REAR
Fracture Wgt	1	9/7/12	KIA REAR
Fracture Wgt	1.1	9/7/12	KIA REAR

ECE Test					
Specification: Max 400 Min 40					
Loaction	Test	Break point	Reading	Part	
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	197	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	64	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	232.5	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	49	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	173	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	62.5	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	234	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	82	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	203	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	66.5	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	155	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	62.5	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	153	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	77	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	160	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	67	11-Jan-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	205	16-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	65.5	16-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	192	16-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	61	16-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	235.5	17-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	64	17-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	283	17-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	87.5	17-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	313	17-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	107	17-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	253	17-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	91	17-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	171	17-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	70	17-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	168	17-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	83	17-Feb-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	205	9-Mar-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	69	9-Mar-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	256	9-Mar-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	93.5	9-Mar-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	168	9-Mar-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	110.5	9-Mar-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	297	10-Mar-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	110.5	10-Mar-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	313	10-Mar-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	95	10-Mar-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	191	2-May-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	88.5	2-May-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	275	2-May-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	106	2-May-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	218	3-May-12	Webasto Frt: 2916581
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	100	3-May-12	Webasto Frt: 2916581

Tempering QC ECE Breakout	Brkpt 4 MAX <S>	251.5	3-May-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	107	3-May-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	239.5	3-May-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	100	3-May-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	258	3-May-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	99	3-May-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	180	9-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	87	9-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	226	9-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	98	9-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	164.5	9-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	80	9-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	166.5	9-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	76	9-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	208	10-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	84	10-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	226	27-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	93	27-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	214	27-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	55	27-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	201	27-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	83	27-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	180	27-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	66	27-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	204	27-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	63.5	27-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	182.5	27-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	81.5	27-Jun-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	218	8-Aug-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	61	8-Aug-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	204	9-Aug-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	71	9-Aug-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	189	9-Aug-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	86	9-Aug-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	197	9-Aug-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	94	9-Aug-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	217	9-Aug-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	96.5	9-Aug-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	254	9-Aug-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	139	9-Aug-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	206	7-Sep-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	112	7-Sep-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	154	7-Sep-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	66	7-Sep-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	191	7-Sep-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	76	7-Sep-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	171	7-Sep-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	97	7-Sep-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	153	8-Sep-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	71	8-Sep-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	168	8-Sep-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	70	8-Sep-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MAX <S>	217	8-Sep-12	Webasto Frt: 2916581
Tempering QC ECE Breakout	Brkpt 4 MIN <S>	92	8-Sep-12	Webasto Frt: 2916581

ECE Test					
Specification: Max 400 Min 40					
Location	Test	Break point	Reading	Part	Part
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	202	10-Jan-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	94.5	10-Jan-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	229	10-Jan-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	122.5	10-Jan-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	184	10-Jan-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	77	10-Jan-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	191	10-Jan-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	93	10-Jan-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	208.5	11-Jan-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	99	11-Jan-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	214.5	11-Jan-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	109.5	11-Jan-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	116	15-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	76.5	15-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	209.5	16-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	58	16-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	209.5	16-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	51	16-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	209.5	16-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	66.5	16-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	209.5	16-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	46	16-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	234.5	16-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	69	16-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	197.5	16-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	85	16-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	202	16-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	62	16-Feb-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	188.5	6-Mar-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	78.5	6-Mar-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	157	6-Mar-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	72.5	6-Mar-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	139	6-Mar-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	67	6-Mar-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	198.5	7-Mar-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	60.5	7-Mar-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	67.5	7-Mar-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	67.5	7-Mar-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	258	1-May-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	111	1-May-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	159	1-May-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	76	1-May-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	174	2-May-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	88	2-May-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	130	2-May-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	98	2-May-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	194.5	2-May-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	87.5	2-May-12	Webasto Rr: 2916579

Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	212	2-May-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	73	2-May-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	147	2-May-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	82	2-May-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	223.5	8-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	103.5	8-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	173	8-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	93	8-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	170	9-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	99	9-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	145	9-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	73.5	9-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	180	9-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	87	9-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	226	9-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	98	9-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	244	27-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	82	27-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	226	27-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	93	27-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	210	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	71.5	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	184	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	76.5	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	187.5	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	70	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	186	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	61	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	197	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	66	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	189	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	62	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	168	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	57	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	188.5	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	66	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	148.5	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	54.5	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	64.5	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	201	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	201	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	64.5	28-Jun-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	224.5	8-Aug-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	60	8-Aug-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	184	8-Aug-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	77	8-Aug-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	146	8-Aug-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	44.5	8-Aug-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	162	8-Aug-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	62	8-Aug-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	180	8-Aug-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	72.5	8-Aug-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	207	8-Aug-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	64	8-Aug-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	185.5	6-Sep-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	102	6-Sep-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	213	6-Sep-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	88	6-Sep-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MAX <S>	162	7-Sep-12	Webasto Rr: 2916579
Tempering QC	ECE Breakout	Brkpt 4 MIN <S>	90	7-Sep-12	Webasto Rr: 2916579



Webasto Kia Sunroof Impact Test Results

Tested By: Tim Scheurich 10/2/2012

Procedure: Six (6) 12 x 12 (300mm x 300mm) Tempered glass samples of the construction used for Webasto Kia Front and Rear Sunroofs were tested per the ANSI/SAE Z26.1-1996 Standard, Test 6, 3.05m (10') ball drop. This test is substantially the same as the 227 gram ball drop test for ECE Reg 43 and Chinese Std GB-9656-2003, except the ANSI test height exceeds the other two. Passing of the ANSI test constitutes passing the requirements of all three standards.

Test height 3.05m (10')

Ball weight: 227 gm (0.5lb)

Sample must not break.

Pass / Fail

Sample 1	Pass
Sample 2	Pass
Sample 3	Pass
Sample 4	Pass
Sample 5	Pass
Sample 6	Pass

Reported by: Mark Shire, Quality Supervisor



Technical Assistance Center Case Report

Printed By:dbrisky

Case Number -T2384085

11/06/2012 09:05:00 AM

Vehicle Data

Model/Year: 2011 SORENTO SX AWD

Engine: G6DCAK075511

Model Code: 74482

VIN: 5XYKWD A26B G^{REDACTED}

Mileage: 26573

Prod Date: 8/16/2010

Warranty Start Date: 3/31/2011

Port Options: CM

Factory Options: PR3

Freeze Frame Data

STFT Bank1:	LTFT Bank1:	Fuel Status Bank:
STFT Bank2:	LTFT Bank2:	Fuel Status Bank 2:
RPM:	Coolant Temp:	CALC Load:
Vehicle Speed:	APS Sensor 1% :	APS Sensor 2% :
Absolute TPS 1% :	Absolute TPS 2% :	Engine Run Time :

Dealer/Contact Data

Dealer: NY099 Dutchess Kia

Phone: (845) 462-7700

Fax: (845) 462-4011

Contact: Christopher Medina

Contact Title:

Service District: EA04

Case Details

Title: Sunroof Glass Shattered #

Symptom: Damage (General)

System: Body Interior & Exterior

Component:

Resolution:

Solution ID:

Case History

*** NOTES 11/06/2012 08:45:13 AM clarify Action Type: Manager review
 *** Performed by contact: Christopher Medina, 8454627700
 *** This is a Request for Assistance ***

Problem Description :
 Cust states while driving the sunroof exploded.The front part of the sunroof is shattered.

Diagnostics Performed :
 Have you heard of any similar occurrences?

*** CASE DISPATCHED 11/06/2012 08:45:16 AM clarify
 *** Performed by contact: Christopher Medina, 8454627700
 from VIP default to Queue TL_Sorento_Sportage.

*** CASE YANKED 11/06/2012 08:55:15 AM dbrisky
 Yanked by dbrisky into WIPbin default.

*** PHONE LOG 11/06/2012 09:04:41 AM dbrisky Action Type: Web Contact
 Advice 1: Please don't touch the vehicle until some one from KMA contacts you.

*** CASE PRIORITY CHANGED 11/06/2012 09:04:42 AM dbrisky
 Case Priority Changed


*****End Case Report T2384085 *****

Page 1 of 1

0791



Customer Visit Report on XMA Glass Breakage (Case No.: T2384085)



Webasto Roof Systems, Inc.

11/28/2012



Table of Contents

- ◆ **Summary on Customer Concern**
- ◆ **Summary on Customer Visit**
- ◆ **Verification on Quality of Glass at Webasto**
- ◆ **Verification on Quality of Glass at Glass Supplier**
- ◆ **Appendix**
 - **Appendix A: Pictures for Impact Point**
 - **Appendix B: Picture for Glass under Curing**

Summary on Customer Concern



◆ Summary on customer concern

- Case no.: T2384085
- Date case received: 11/6/2012
- Model / Year: 2011 SORENTO SX AWD
- VIN: 5XYKWDA26BG^{REDACTED}
- Part no.: 81600-1U000 (panorama roof assembly)
- Problem description: Customer stated that the sunroof had exploded while driving and that the front part of the sunroof had been shattered.

- Here is summary on the customer complaint.



Case no.:
T2384085

Summary on Customer Visit



◆ Summary on customer visit

- Dealer name: Dutchess KIA
- Dealer location: Poughkeepsie, NY
- Date visited: 11/09/2012
- Participants: Ralph Kimbell (KMMG), Chris Capuzzo (KMMG), Louis Watts (Webasto), Chris Medina, (Dutchess KIA)
- Key findings
 - The front glass panel was shattered, but the glass was secured to the brackets.
 - An impact point was identified approximately center right of the roof opening along the front edge of the glass panel (see Appendix A for pictures).
 - The fragments of the shattered glass showed a good break pattern. Tempering of glass was good.

Verification on Quality of Glass at Webasto



◆ Verification on quality of glass at Webasto

- Investigation on glass build history
 - According to the barcode on the bracket, the front moving glass went through a normal production – no rework was done.
- Inspection set up on front glass at Webasto
 - Pre-assembly (Glass 2) process: 100% visual inspection at Inspection Station
 - Final assembly process: 100% visual inspection at three stations (FA 540, FA 560, and FA 580) including Final Inspection
- Peel test: Checks adhesion between glass and brackets
 - Sample size: One sample per week if there is a production run
 - Specification: Polyurethane shall not peel off the bracket or glass by hand.
 - Each sample is to cured for 144 hours (6 days) before the test is performed (see Appendix B for a picture).

Verification on Quality of Glass at Glass Supplier



◆ Verification on quality of glass at glass supplier (Guardian Automotive)

- No issues with the tempering process of the glass
 - No rework has been performed on the front glass.
- Impact (ball drop) test: Pass
 - Conducted on Six (6) 12 x 12 (300mm x 300mm) tempered glass samples (10/2/2012)
 - Specification: Sample does not break.
 - See the Excel file for the more details
- ECE breakout test: Pass
 - Specification: Minimum 40 and Maximum 400
 - Here is summary on the test results in 2012.
- Fracture weight test: Pass
 - Specification: Minimum 0 and Maximum 4.25g
 - Here is summary on the test results in 2012.
- Tensile stress test: Pass
 - Specification: Pass 0 and fail 0.99
 - Here is summary on the test results in 2012.



Impact Test Result



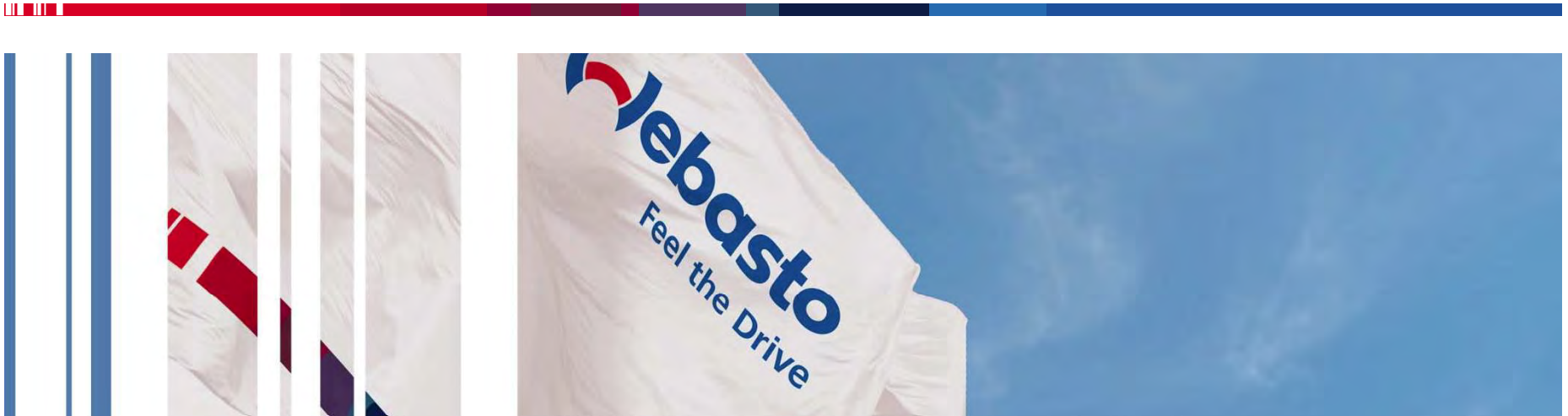
ECE Breakout Test



Fracture Weight Test

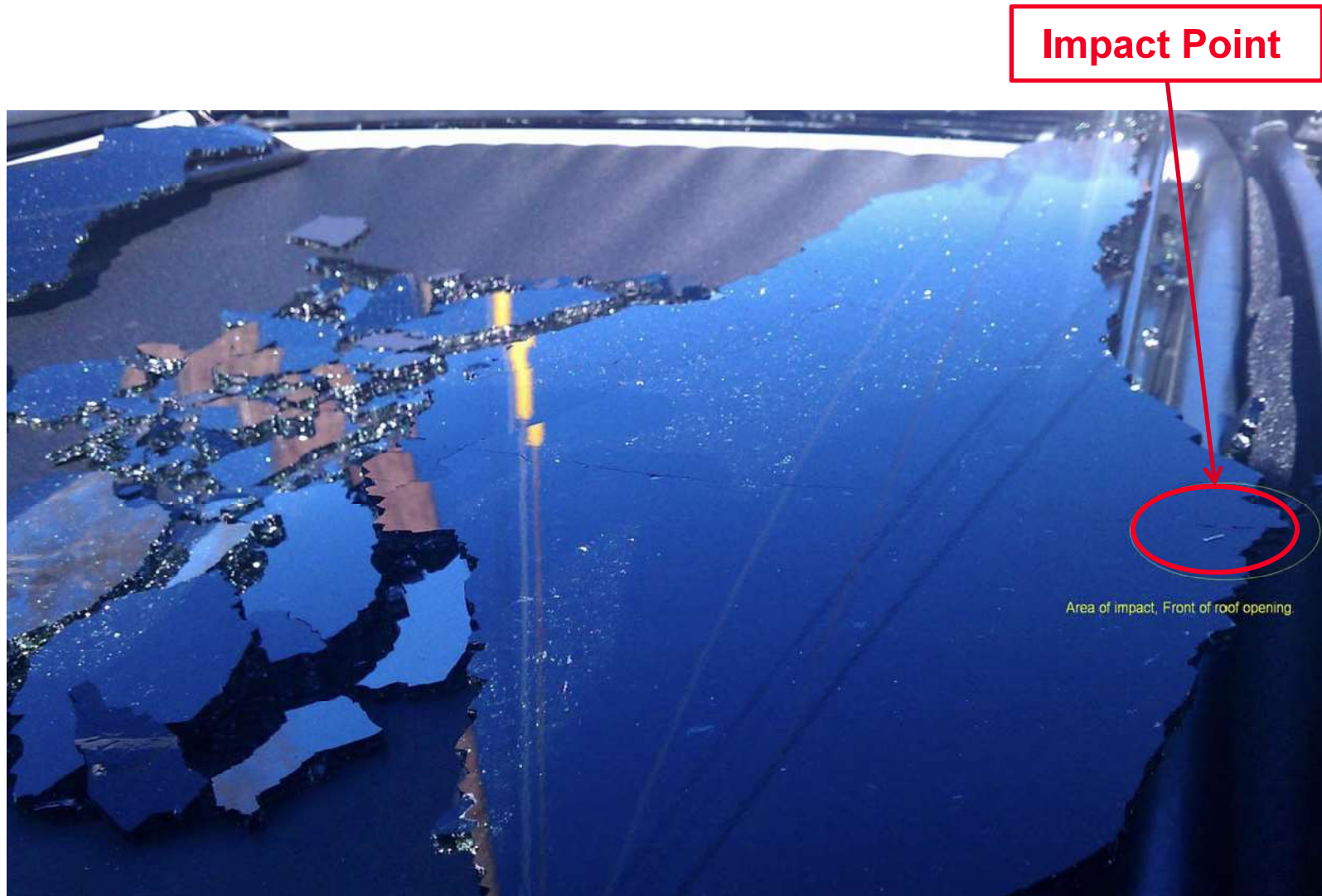


Tensile Stress Test



Appendix

Appendix A: Pictures for Impact Point



Appendix A: Pictures for Impact Point (Continued)



Impact Area (close up from the bottom)



Appendix B: Picture for Glass under Curing



A front glass is under curing for peel test.



QF / XM CPG Sunroof Glass Durability Test

Purpose

- ❖ To Investigate and understand to "Root Cause" at CPG the air affect, and thermal effect on glass while driving on dynamic roads such as Belgian Block and driveway that can lead to Field Quality Issues

❖ **Complaint** Vehicle Panorama Sunroof Glass Exploded Driving @ approximately 60 MPH

❖ **CPG Member** (HATCI) Alex Ozark – Durability Test Engineer

Scope

❖ Test Proposal:

Conduct testing on 13MY XM & QF @ CPG's Durability Loop Event (Belgian, twist, driveway, etc) and Oval Events.

❖ Test Cycle Details:

Drive a shift, skip a shift

Carwash at beginning of 2nd shift and 1st shifts only.

- Do not idle vehicle at beginning of shift, start driving as soon as possible.
- Always leave sunroof shade open.
- Run oval laps first (5x)
 - Drive 65MPH until end of choppy road. All opening of windows are separate from each other.
 - Drive choppy road, open/close sunroof once
 - Open/close right rear window twice (hard on ears)
 - Open/close driver window twice
 - Drive 25MPH from choppy road to Turnout 4, All opening of windows are separate from each other.
 - Open/Close sunroof once during the lap.
 - Open/close right rear window twice (hard on ears)
 - Open/close driver window twice
 - At Turnout 4 slam driver door 4 times (with window closed)
- Run the Full Durability Loop Schedule (attached) once.
- Inspect sunroof glass during daylight shifts for any signs of cracking or pitting.

If glass does not break, induce chip/scratch and try again.



Status

- ❖ **Status** – Preliminary test proposal completed (11/6) Testing on XM commenced (11/8) QF to commence (11/12)
- ❖ HATCI (CGP) Full Durability Loop Schedule (2,000 Miles) **Completed on XM - No Cracks Visible**
- ❖ HATCI (CPG) Full Durability Schedule on both vehicles with induced chip / scratch (**Completed** on 11/26/12)

<input type="radio"/>	Decision Making
<input checked="" type="radio"/>	Information Sharing
<input type="radio"/>	Directions

CY 2012

KMA QF/XM Sunroof Test

26 November 2012

HATCI Vehicle Evaluation

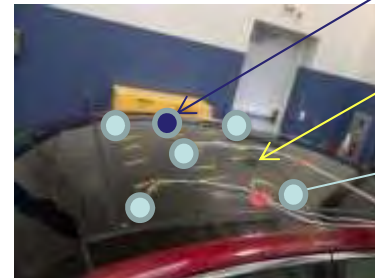
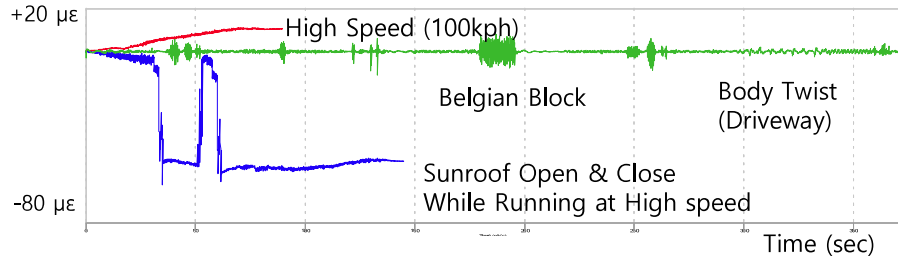
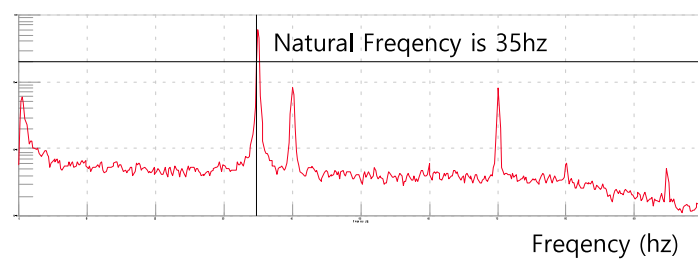
Durability Group

Alex Ozark



KMA QF/XM Sunroof Test

26 Nov 2012
Durability Group
Alex Ozark

Purpose	To reproduce of QF/XM sunroof glass shattering issue.
Background	Customer / Field complaints of Panorama Sunroof Glass Shatter - Currently 9 Reported Incidents to NHTSA QF : 1 Case, XM : 8 Cases
Details	<p>1. Strain gages were placed at 5 points of QF sunroof(4 corners, center). 2. Several conditions were tested:</p> <ul style="list-style-type: none"> a) Aero Dynamic (high speed) / Random Road Input b) Body Twist c) Loud Audio (sound pressure) d) Door & Roof Operation. <p>(1) Front corner shows highest strain (not center) (2) Most severe event is 'Open & Close sun roof while running high speed', but not a high level (below 0.5kgf/mm², 70microstrain)</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>Temperature Sensor</p> <p>Air Flow</p> <p>Strain Gauges</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;">   </div> <p>2. Durability test of 2,000mile was finished and no sign of crack on both QF & XM. With artificial [X] scratch at center of roof, vehicles completed 2,000 miles of testing with no cracking. * Test conditions</p> <ul style="list-style-type: none"> a) Car Wash after soaking (hot/cold). b) Oval driving 5 Lap with different windows opening/closing for pressurization, door slams. c) Durability loop events

KMA QF/XM Sunroof Test

26 Nov 2012
Durability Group
Alex Ozark

Details

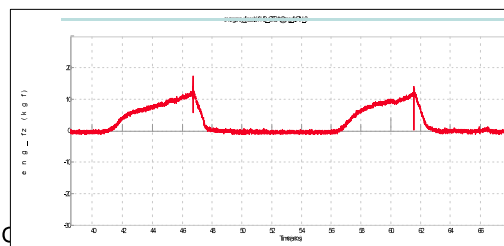
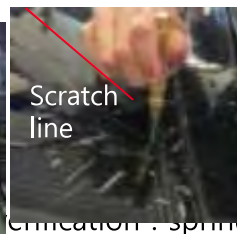
After vehicles completed both testing scenarios, we tried impact tests.

1. Stone Impact : A 0.091kg stone was dropped from various heights onto the **center** of the glass.
 - a) In all drop cases, a very small mark was made on the glass. Mark was imperceptible compared to scribed [X]
 - b) It became obvious that the deflection within the mounting structure, AND at the center of the glass would allow for a heavy object to fall from a great height with probably no damage.



1 m	OK
1.5 m	OK
2 m	OK

2. Chipping : a spring-loaded punch was used at the very leading **right corner** of the glass to try and chip the glass.
 - a) 12-15kgf is quickly released from the punch in a concentrated pen-tipped area.
 - b) Result: fully shattered pane → stress concentrates at the edges.
 - c) Conclusion: Glass did NOT shatter along scratched areas. This tells us small exterior imperfections (scratches) are not crack propagation sites.



10 kgf

3. Chipping : Spring-loaded punch was used to try and shatter.
 - a) A Kia Sportage panorama roof was used to test the center-punch method.
 - b) Result: No breakage, minor mark left.
 - c) Conclusion: The edges are the most vulnerable spot for breakage.



KMA QF/XM Sunroof Test

26 Nov 2012
Durability Group
Alex Ozark

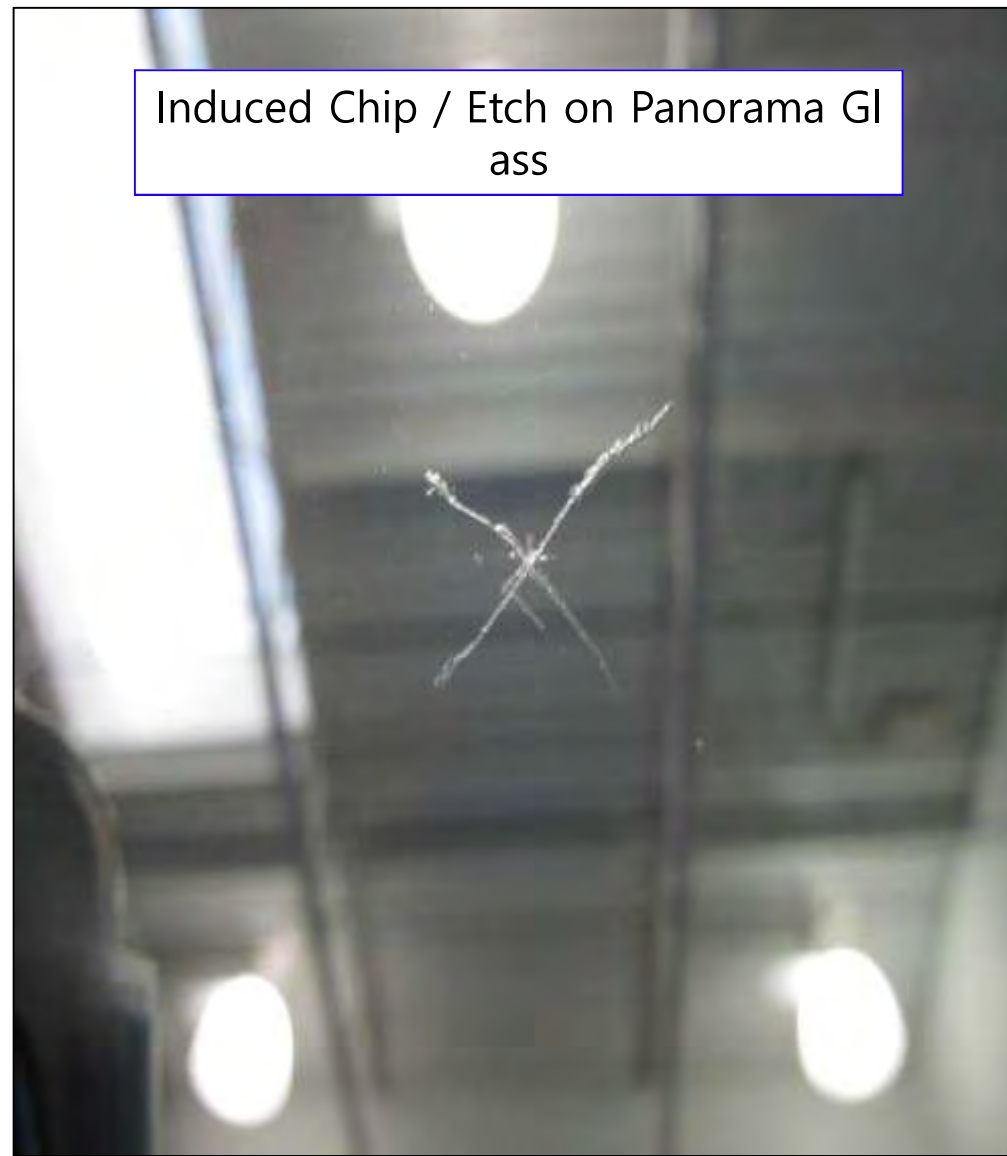
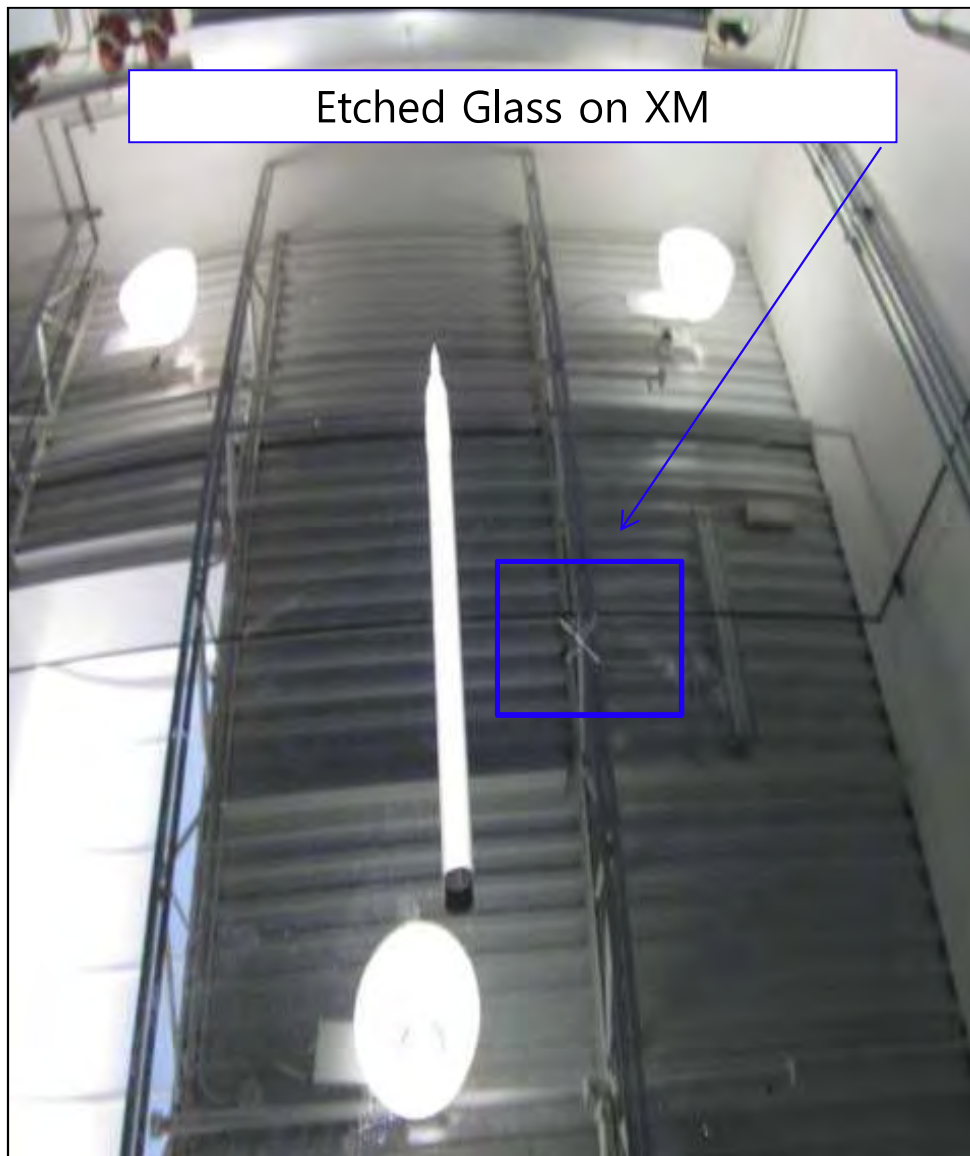
Conclusion

Preliminary thoughts are that environmental causes are not the primary reason (pressure change, shaking, temperature change).

1. Hardened/Tempered glass spontaneously shatters for two main reasons:
 - a) Impact at edge into the body of the glass.
 - b) Impurity in the glass (e.g. metal flake) leading to different expansion rates and high localized stresses.
2. Hardened glass has residual compressive stress on exterior surfaces, this causes any surface scratches to be negligible.
3. The most damaging effect on hardened glass is a crack that penetrates to the tensile inner "body" of the glass.
4. The largest stress on the glass surface is at the edges.
5. The center of a large sheet of glass can absorb a very large impact, and shock, and shattering here is not likely.

Problem

Panorama Glass Induced Chip



Model	Length (mm)	Width (mm)	Area (m^2)
Hyundai Santa Fe (7-pass)	1880	1020	1.92
Hyundai Elantra Sdr	1540	1060	1.63
Hyundai Santa Fe Sport	1645	990	1.63
Ford Edge	1695	945	1.60
Kia Sorento	1625	970	1.58
Kia Sportage	1610	960	1.55
Hyundai Azera	1405	1085	1.52
Kia Soul (PS)	1520	980	1.49
Hyundai Tucson	1535	960	1.47
Kia Cadenza	1530	960	1.47
Kia Optima	1460	955	1.39
Hyundai Sonata	1350	990	1.34
Nissan Maxima	1335	955	1.27
Hyundai Veloster	1020	1135	1.16
VW Tiguan	1345	850	1.14
Jeep Grand Cherokee	1110	870	0.97
Ford Escape	1095	840	0.92
Nissan Pathfinder	950	850	0.81
Mini Countryman	1025	780	0.80

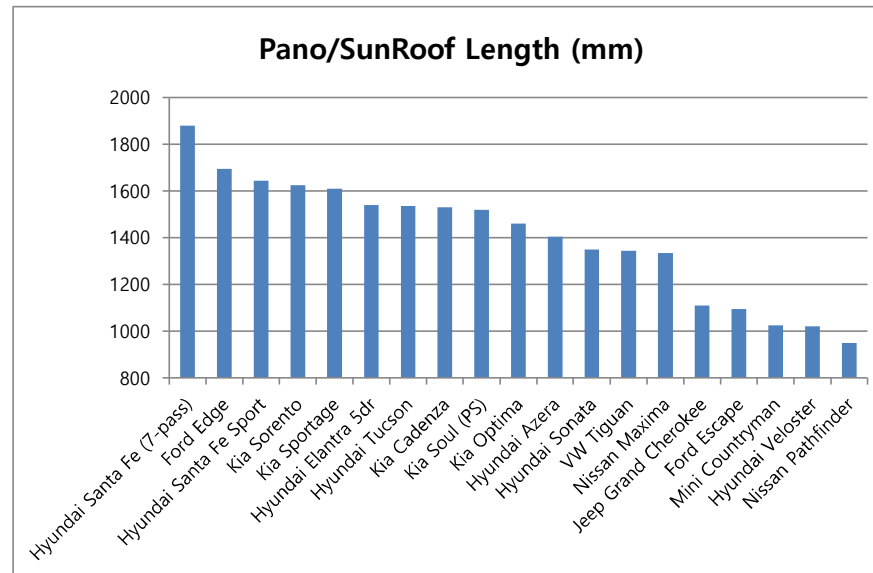
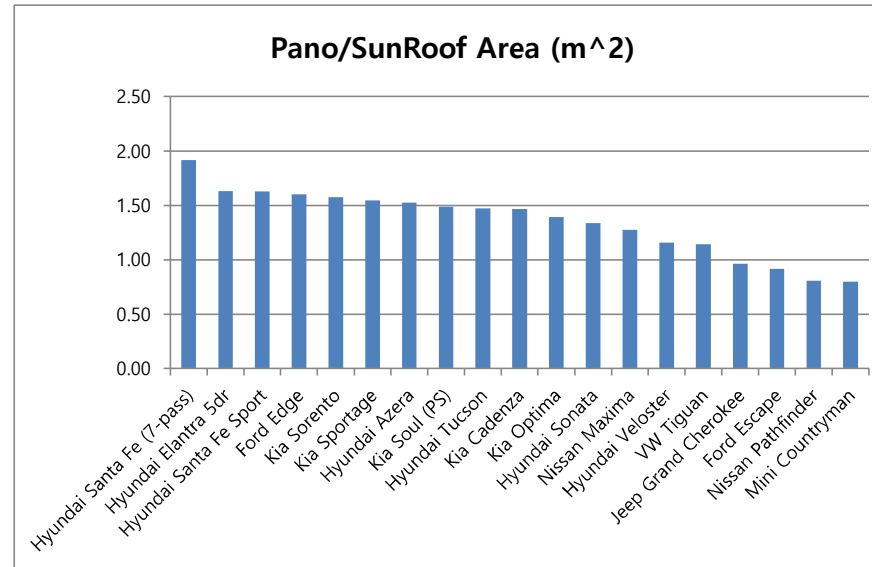
Model	Length (mm)	Width (mm)	Area (m^2)
Hyundai Santa Fe (7-pass)	1880	1020	1.92
Ford Edge	1695	945	1.60
Hyundai Santa Fe Sport	1645	990	1.63
Kia Sorento	1625	970	1.58
Kia Sportage	1610	960	1.55
Hyundai Elantra Sdr	1540	1060	1.63
Hyundai Tucson	1535	960	1.47
Kia Cadenza	1530	960	1.47
Kia Soul (PS)	1520	980	1.49
Kia Optima	1460	955	1.39
Hyundai Azera	1405	1085	1.52
Hyundai Sonata	1350	990	1.34
VW Tiguan	1345	850	1.14
Nissan Maxima	1335	955	1.27
Jeep Grand Cherokee	1110	870	0.97
Ford Escape	1095	840	0.92
Mini Countryman	1025	780	0.80
Hyundai Veloster	1020	1135	1.16
Nissan Pathfinder	950	850	0.81

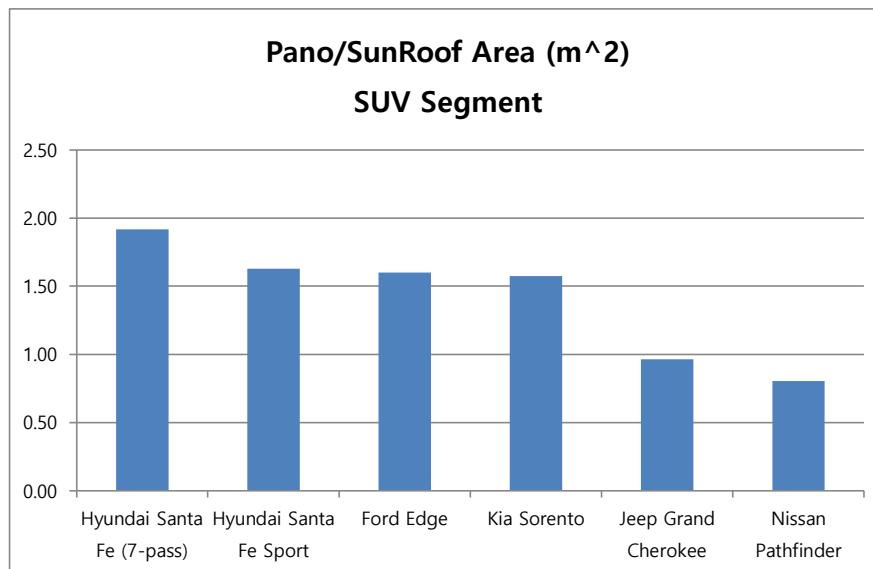
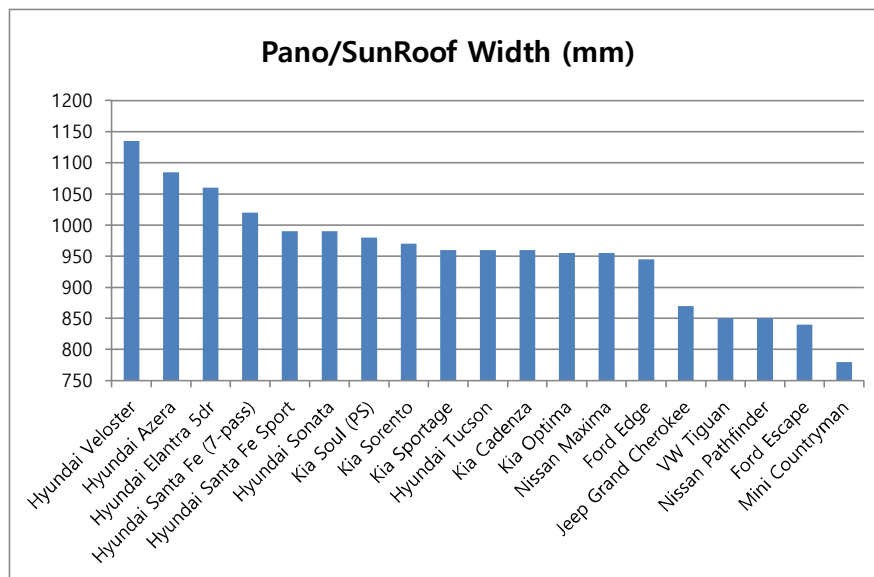
Model	Length (mm)	Width (mm)	Area (m^2)
Hyundai Veloster	1020	1135	1.16
Hyundai Azera	1405	1085	1.52
Hyundai Elantra 5dr	1540	1060	1.63
Hyundai Santa Fe (7-pass)	1880	1020	1.92
Hyundai Santa Fe Sport	1645	990	1.63
Hyundai Sonata	1350	990	1.34
Kia Soul (PS)	1520	980	1.49
Kia Sorento	1625	970	1.58
Kia Sportage	1610	960	1.55
Hyundai Tucson	1535	960	1.47
Kia Cadenza	1530	960	1.47
Kia Optima	1460	955	1.39
Nissan Maxima	1335	955	1.27
Ford Edge	1695	945	1.60
Jeep Grand Cherokee	1110	870	0.97
VW Tiguan	1345	850	1.14
Nissan Pathfinder	950	850	0.81
Ford Escape	1095	840	0.92
Mini Countryman	1025	780	0.80

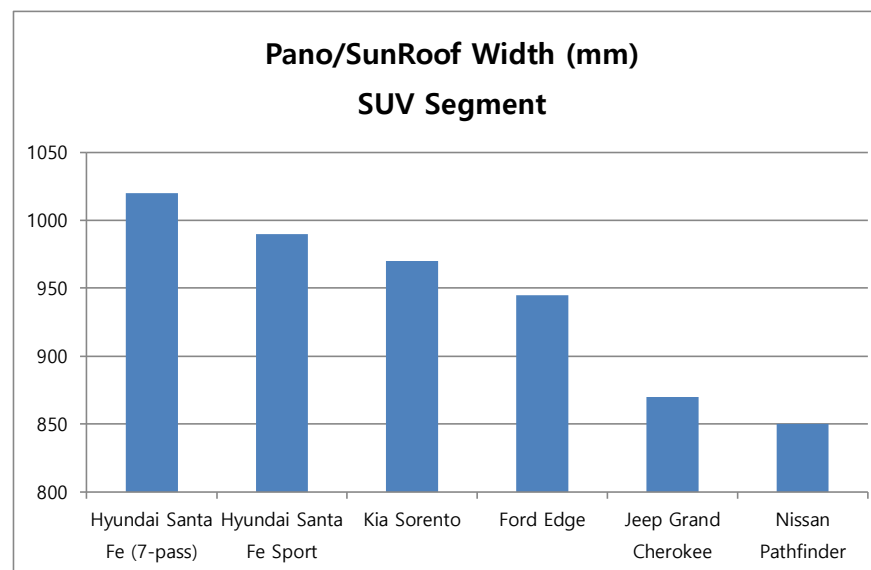
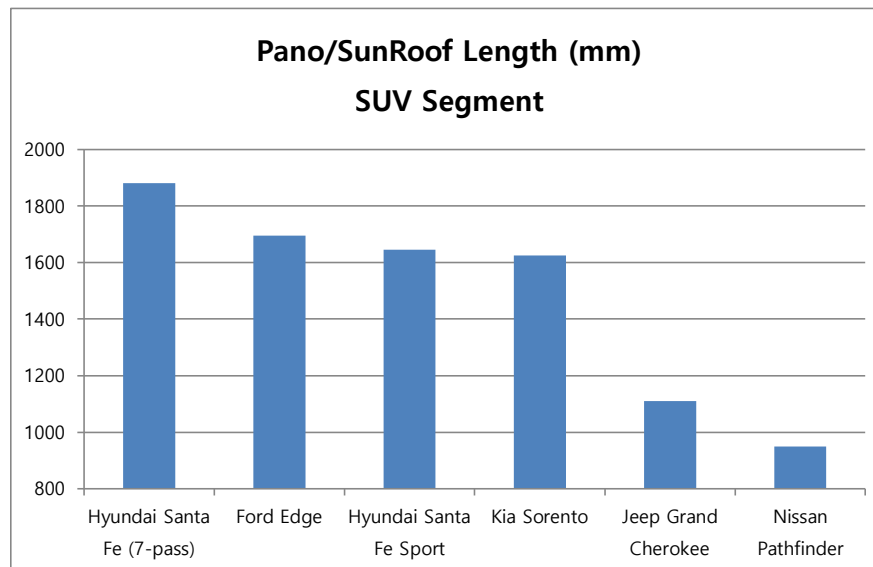
Model	Length (mm)	Width (mm)	Area (m^2)
Hyundai Santa Fe (7-pass)	1880	1020	1.92
Hyundai Santa Fe Sport	1645	990	1.63
Ford Edge	1695	945	1.60
Kia Sorento	1625	970	1.58
Jeep Grand Cherokee	1110	870	0.97
Nissan Pathfinder	950	850	0.81

Model	Length (mm)	Width (mm)	Area (m^2)	
Hyundai Santa Fe (7-pass)	1880	1020	1.92	
Ford Edge	1695	945	1.60	
Hyundai Santa Fe Sport	1645	990	1.63	
Kia Sorento	1625	970	1.58	
Jeep Grand Cherokee	1110	870	0.97	0.683077
Nissan Pathfinder	950	850	0.81	0.584615

Model	Length (mm)	Width (mm)	Area (m^2)	
Hyundai Santa Fe (7-pass)	1880	1020	1.92	
Hyundai Santa Fe Sport	1645	990	1.63	
Kia Sorento	1625	970	1.58	
Ford Edge	1695	945	1.60	
Jeep Grand Cherokee	1110	870	0.97	0.896907
Nissan Pathfinder	950	850	0.81	0.876289







Panoramic Sunroof Data

Segment	Model	Length (mm)	Width (mm)	Area (m^2)
Midsize Car	Kia Optima	1460	955	1.39
	Hyundai Sonata	1350	990	1.34
Large Car	Kia Cadenza	1530	960	1.47
	Hyundai Azera	1405	1085	1.52
	Nissan Maxima	1335	955	1.27
	Chevrolet Impala	n/a	n/a	n/a
Compact CUV	Kia Sportage	1610	960	1.55
	Hyundai Tucson	1535	960	1.47
	Ford Escape	1095	840	0.92
	VW Tiguan	1345	850	1.14
Midsize CUV	Kia Sorento	1625	970	1.58
	Hyundai Santa Fe Sport	1645	990	1.63
	Hyundai Santa Fe (7-pass)	1880	1020	1.92
	Ford Edge	1695	945	1.60
	Jeep Grand Cherokee	1110	870	0.97
	Nissan Pathfinder	950	850	0.81
Urban CUV / Small Car	Kia Soul (PS)	1520	980	1.49
	Mini Countryman	1025	780	0.80
	Hyundai Veloster	1020	1135	1.16
	Hyundai Elantra Sdr	1540	1060	1.63



Field Investigation Report – CA Case: **REDACTED**

Kia Motors America I 11/29/2012

The Power to Surprise

XMa – Field Investigation Analysis Report

Purpose

- ❖ Purpose: Investigate Field Quality Issue and Identify "Root Cause"
- ❖ Complaint: Customer States Panorama Roof Glass Shattered While Driving on Hwy
- ❖ Members: (KMA PQ) Pete Ferry – Sr. Service Engineer

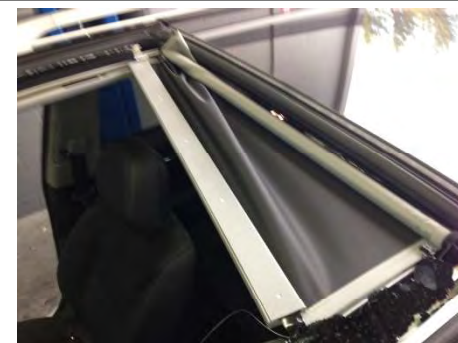
Investigation Results

Analysis :

- ❖ Customer complaint that there was a loud noise like an explosion and some portion of the roof and pieces of glass fell into vehicle
- ❖ Customer pulled over and was contacted by a witness and CHP
- ❖ Customer claims that they immediately drove to the dealership Temecula Kia and contacted Sales then left vehicle with Service
- ❖ Evidence that roof of vehicle had made contact with road debris which left signs of damage in four distinct areas (see next slide)
- ❖ Sunshade pushed back at an angle suggesting a force applied which did not originate at sunshade handle and was not due to air pressure alone. In addition, there are scuff marks left on top of sunshade crossbar
- ❖ Large dent which should have required some force found on left side of roof very close to leading edge of glass was most likely the impact which caused glass to shatter
- ❖ Marks on the inside edge of left of roof rail towards front
- ❖ Plastic trim piece in front edge of roof opening has signs of impact and discoloration due to bending as well as a small tear

Details :

- ❖ VIN: 5XYKU4A28DG^{REDACTED} / MILES: 1,269
- ❖ Location/Approx.Speed: I-15 S. Temecula/60-70 mph Uphill
- ❖ Conditions: Approx. 8:00 – 8:30 AM, Clear and Dry



Glass Shattered, Shade Forced Back



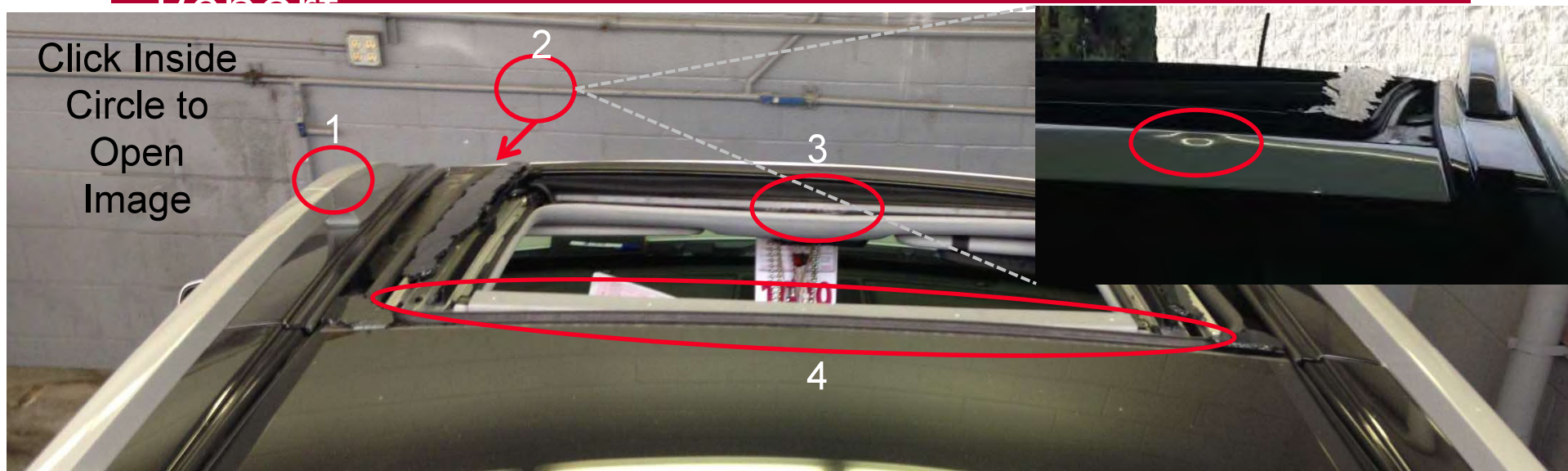
Large Dent Near on Roof Near Glass

Next Steps

- ❖ Vehicle currently part of a CA case and Pano Roof assy is not be removed but preserved in place for evidence
- ❖ Pano Roof glass shattering does not appear to be due to any material defect but rather it was due to impact with road debris and thus it is not going to be valuable for further investigation by the supplier or KMMG

XMa – Field Investigation Analysis

Report



1. Scratches on inside toward the leading edge of the left side roof rail, aft of the large dent at left side of roof panel shown as #2. Note: Customer claims that they never used the roof rails to tie down any cargo since purchasing the vehicle, negating any plausible explanation for scratches found here being due to tie down hooks or cargo
2. Large dent at left side of roof panel. This dent is in right at the leading edge of the glass and an object which impacted with the force necessary to cause such a dent this close to the glass would also shatter the pano roof glass. We can demonstrate this on video showing a measured weight coming down at known velocity to exhibit similar dent and shatter the glass should this evidence be necessary for trial
3. Evidence of a strike near the center of the plastic trim piece (air dam) just fore of the pano roof opening. This impact caused the polymer to turn white due to the bending force applied to the material, caused a small cut about 3 mm deep, and impacted the edge of the headliner leaving a visible angle of deflection
1. There is a scrape mark with striations visible moving from front to rear on the top leading edge of the sunshade. The sunshade was also pushed rearward at an uneven angle. The customer claims that the sunshade was closed when the event occurred. The debris which caused the damage transferred some dirt or other material to this sunshade handle/cross bar.

Evaluation Results



- Pictures directly above show the condition of the vehicle upon arrival to the dealership for investigation.
- Front bracket fell into the vehicle onto the customer after the fracture occurred. All glass on the front leading edge was displaced as customer was on the highway.
- Some of the glass was caught in the sunshade as it was partially open during the event. The remainder of the glass fell into the vehicle.
- No foreign objects were identified in the debris.

Evaluation Results



(a) Front Bracket



(b) Left Side Brackets



(c) Left Rear Shoe



(d) Rear Bracket



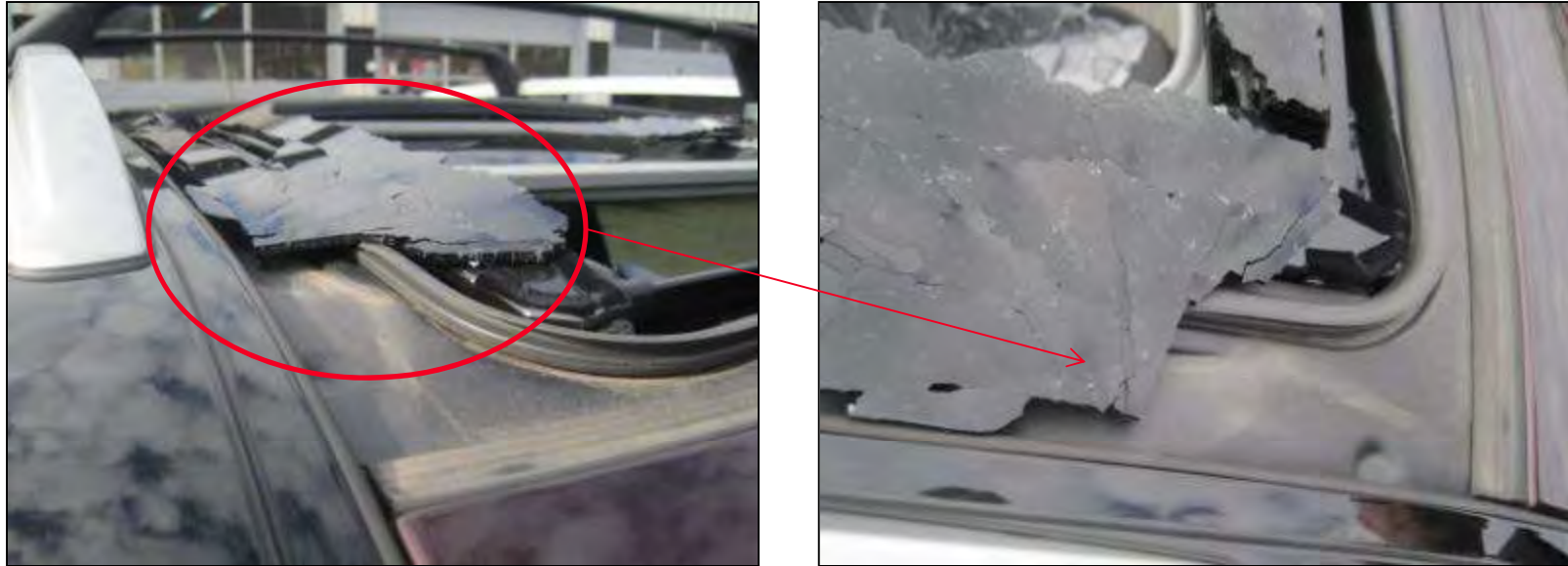
(e) Right Side Brackets



(f) Right Rear Shoe

- Pictures directly above show how the glass did stay adhered to brackets showing no signs of e-coat separation and fragmented as tempered glass should.
- All brackets were shipped back to Webasto facility in MI for additional testing to verify no concerns.

Evaluation Results



- Pictures directly above show area on the right side that has some web break pattern. But a lot of the glass from the front and edge are missing and difficult to say that this is 100% the origin of the break.
- Requested Webasto check their process to ensure glass is not being damaged in this area during assembly and requested Guardian, Glass supplier, to look at the glass in this area to determine if there are any issues that may compromise the integrity of the glass as this area is similar to previous occurrence.



XM Panorama Glass Investigation – GA073

Quality Assurance Team | 2012.11. 30

Prepared	MGR	HOD
R. Kimbell		

KR-GA-GAF-F-0035
Rev. Date: 6/26/2012
Rev. Level: 01

Printed Copy for Reference Only

The Power to Surprise

XM Panorama Glass Investigation



Customer Complaint

- Customer states that she was driving with the sunroof glass panel closed on I-85N at approximately 80mph when the front glass panel fractured. Customer does not recall hearing any sort of impact to the glass at that time. Customer drove unit to dealer for repair.
- Location: Smyrna, GA, Ed Voyles KIA (GA073)

Investigation Details

➤ Participants:

- Ralph Kimbell (KMMG), Louis Watts (Webasto), Dan Howells (KMA)

➤ Vehicle Information:

- VIN: 5XYKU4A29CG^{REDACTED} 2012 Sorento EX FWD
- Production Date: 5/20/2011
- Mileage: 6,311
- Service History: No related internal or external repair history.



➤ Evaluation Results:

- During evaluation there was no visible damage to the roof.
- After initial analysis of glass fragments, tempering of glass appears to be within specification.
- After initial evaluation of all the brackets, no e-coat separation was noticed. Visual inspection showed glass still adhered to all brackets. However all brackets were returned to supplier for further analysis. Parts sent to MI.
- **After glass analysis by Webasto, KMMG and KMA, it was difficult to determine the root cause of the pano roof failure. Much of the glass on the leading edge of the sunroof was blown away as customer was on highway when fracture occurred and drove vehicle in for service as well. There were no witness markings present that would indicate unit was damaged by external cause. All brackets were secure and pano roof appeared to be operating as designed. Dealer replaced the glass under warranty as no definite cause was identified.**



Next Steps

- Currently investigating each claim with supplier to determine root cause.
- QA plans to have glass fragments and brackets evaluated independently of Guardian to verify tempering and glass quality.
- Webasto obtained all brackets from unit for further testing. Supplier will also check pano build history using barcode present on bracket to verify this pano roof had no prior repair concerns. All information will be included in their report.
- Webasto will also ship back some glass fragments to Guardian (Glass Supplier) for further analysis. Results should be submitted in report.